



DEPARTMENT OF THE ARMY  
BLUE GRASS ARMY DEPOT  
431 BATTLEFIELD MEMORIAL HIGHWAY  
RICHMOND, KENTUCKY 40475

June 20, 2017

Subject: Class 2 Hazardous Waste Storage & Treatment Permit Modification Request,  
GB Sample Extraction Operation  
Blue Grass Army Depot (BGAD)  
EPA ID #KY8-213-820-105, AI #2805

Commonwealth of Kentucky  
Department for Environmental Protection (KDEP)  
Division of Waste Management  
Hazardous Waste Branch  
ATTN: Ms. April Webb, PE, Manager  
300 Sower Blvd, 2<sup>nd</sup> Floor  
Frankfort, KY 40601

Dear Ms. Webb:

Enclosed, for your review and approval, are a Resource Conservation and Recovery Act (RCRA) Class 2 Hazardous Waste Storage & Treatment Permit Modification Request to perform Sarin (GB) Sample Extraction Operation and an updated part A.

Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) mission is to safely destroy the chemical weapons stored at the Blue Grass Chemical Activity (BGCA) located on BGAD. Execution of this mission is the responsibility of the Program Executive Office (PEO) Assembled Chemical Weapons Alternatives (ACWA). Chemical munitions currently stored at BGAD will be treated at the BGCAPP.

The BGCAPP Laboratory currently has access to GB hydrolysate that was manufactured using high-purity distilled GB agent; this hydrolysate matrix may not support development and validation of appropriately robust GB analytical methods. Munitions-grade agent is agent that has been pulled from aging agent-containing munitions and not purified. Absence of historical stabilizer(s), degradation byproducts, and original production impurities may lead to development or optimization of analytical methods that are not sufficiently robust to analyze plant munitions-grade hydrolysate. To reduce analytical startup risk and better prepare the BGCAPP Laboratory for GB

destruction operations, PEO ACWA has made the decision to obtain samples of munitions-grade GB to allow sufficient quantity of representative caustic GB hydrolysate to meet BGCAPP Laboratory analytical optimization and development needs. Sampling of agent from a selected number of GB filled munitions is required to support the development of analytical methods. The GB agent within BGAD stockpile contained two different types of stabilizer, tributylamine (TBA) and TBA/diisopropylcarbodiimide (DICDI).

The proposed plan is to obtain samples from 8-inch GB filled projectiles containing TBA and DICDI stabilizers. Approximately 1 liter of GB sampled with TBA stabilizer and 1 liter of GB sampled with DICDI stabilizer will be collected.

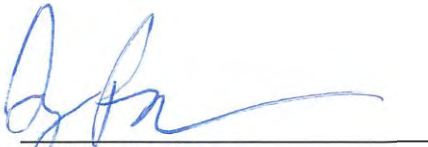
The operation will take place in the Chemical Limited Area (CLA) in the same location planned for Mustard (H) Agent Treaty Sampling. The selected GB filled chemical projectile to be sampled will be moved from a chemical hazardous waste storage unit (HWSU) to the sampling facility. The agent extraction/sampling will be conducted in a glovebox inside an Environmental Enclosure (EE). Once the sample operations are completed, the chemical munitions will be over packed and returned to a designated chemical HWSU. The samples will be prepared for shipment, and placed into a chemical HWSU for temporary storage, awaiting shipment by the U.S. Army 20th Support Command to Edgewood Chemical Biological Center Chemical Transfer Facility. The operation is proposed to take place in May 2018.

This RCRA permit application describes the transportation of the chemical munitions to the sampling facility, the extraction/sampling operations, preparation of the samples for shipment, and transport of the overpacked chemical munitions to the designated chemical HWSU.

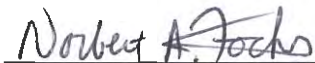
If you have any questions or require additional information, please contact Mr. Todd Williams, ACWA-BGCAPP Environmental Engineer, at (859) 625-6264, or Mr. Jim Hawkins, BGAD Environmental Chief, at (859) 779-6268.

**"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."**

Sincerely,



Jeff Brubaker  
Site Project Manager  
ACWA-BGCAPP  
Operator



Norbert A. Fochs  
Colonel, U.S. Army  
Commanding  
Blue Grass Army Depot

Enclosures

cc:

Dale Burton, KDEP  
Heather Alexander, KDEP  
Allen Gilbert, BGCA  
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Todd Williams, ACWA  
Jim Hawkins, BGAD  
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Resource Conservation and Recovery Act  
(RCRA)

## **Class 2 Hazardous Waste Storage & Treatment Permit Modification Request, Addition of GB Sample Extraction Operation**

for the Blue Grass Chemical Agent-Destruction Pilot Plant  
Blue Grass Army Depot, Richmond, Kentucky

*Submitted to:*

Kentucky Energy and Environment Cabinet  
Department for Environmental Protection  
Division of Waste Management  
300 Sower Boulevard  
Frankfort, Kentucky 40601

*Submitted by:*

Blue Grass Army Depot  
431 Battlefield Memorial Highway,  
Richmond, Kentucky 40475-5901

and

Assembled Chemical Weapons Alternatives  
Blue Grass Chemical Agent-Destruction Pilot Plant  
431 Battlefield Memorial Highway, Richmond, Kentucky 40475-5901



**Submitted 20 June 2017**

**Revision 0**

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## Executive Summary

The filing of this request is a Modification to the Blue Grass Army Depot's (BGAD's) Resource Conservation and Recovery Act (RCRA) Permit. The document is a modification to BGAD's RCRA permit and is not intended to be a stand-alone document. When applicable, this document references operations (steps, procedures, etc.) in BGAD permit applications rather than reiterating those operations. This minimizes discussion inaccuracy and error between other Parts/modules of BGAD permit. Therefore this modification request incorporates by reference specific parts of BGAD's October 2015 renewal applications/modifications Modules I (Entire Facility Permit Section (F)), Module II (Conventional Storage Permit Section (N)), and Module III (Chemical Storage Permit Section (C)).

The mission of the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) is to safely destroy the chemical weapons stored at the Blue Grass Chemical Activity (BGCA) located on the Blue Grass Army Depot (BGAD). Execution of this mission is the responsibility of the Program Executive Office (PEO) Assembled Chemical Weapons Alternatives (ACWA). Chemical munitions currently stored at BGAD will be treated at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP).

The BGCAPP Laboratory currently has access to GB hydrolysate that was manufactured using high-purity distilled GB agent obtained from Edgewood Biological and Chemical Center (ECBC). This hydrolysate matrix may not support development and validation of appropriately robust GB analytical methods due to the unknown composition/state of degradation of the GB agent fill within the munitions stored at BGAD. Munitions-grade agent is agent fill that has been pulled from aging munitions and not purified. Absence of historical stabilizer(s), degradation byproducts, and original production impurities may lead to development or optimization of analytical methods that are not sufficiently robust to analyze plant munitions-grade hydrolysate. To reduce analytical startup risk and better prepare the BGCAPP Laboratory for GB destruction operations, PEO ACWA has made the decision to obtain samples of munitions-grade GB to allow sufficient quantity of a representative caustic GB hydrolysate sample to meet BGCAPP Laboratory analytical optimization and development needs. Sampling of agent from a selected number of GB filled munitions is required to support the development of analytical methods that will best support BGCAPP GB destruction operations. Based on historical munition lot data, the GB agent within the BGAD stockpile contained two different types of stabilizers: tributylamine (TBA) and TBA/diisopropylcarbodiimide (DICDI).

The proposed plan is to obtain samples from 8-inch GB filled projectiles containing TBA and DICDI stabilizers. The 8-inch GB projectiles store at BGAD contain approximately 6 liters of GB agent and do not contain energetics/burster. The M55 Rockets will not be sampled due to concerns with the thin-wall aluminum body and the potential difficulties to re-plug the thin wall of the rockets. Approximately 1 liter of GB containing TBA stabilizer and 1 liter of GB containing DICDI stabilizer will be collected to create the representative hydrolysate samples.

1  
2 Kentucky Revised Statute 224.50-130(5) defines “treatment” to include the manual or  
3 mechanical handling of the chemical agent compounds and of any munitions containing  
4 these compounds during the processing of munitions to remove the compounds, to  
5 separate munitions components, and to otherwise prepare the components and  
6 compounds for destruction, neutralization, dismantling, or decommissioning; therefore,  
7 a permit modification is required to extract agent from the chemical munitions.

8  
9 BGAD stockpiled chemical munitions are stored in permitted chemical Hazardous  
10 Waste Storage Units (HWSUs) inside the Chemical Limited Area (CLA). The chemical  
11 HWSUs are earthen-covered bisection cylindrical structures and constructed with  
12 concrete to ensure the safe storage and containment of the munitions.

13  
14 The operation will take place in the CLA in the same location planned for Mustard (H)  
15 Agent treaty sampling. The selected GB filled chemical projectile(s) to be sampled will  
16 be moved from a chemical HWSU to the sampling facility. The agent  
17 extraction/sampling will be conducted in a glovebox inside an Environmental Enclosure  
18 (EE). Once the sample operations are completed, the chemical munitions will be over  
19 packed and returned to a designated chemical HWSU. The samples will be prepared  
20 for shipment, and placed into a designated chemical HWSU for temporary storage,  
21 awaiting shipment by the US Army 20<sup>th</sup> Support Command to Edgewood Chemical  
22 Biological Center (ECBC) Chemical Transfer Facility (CTF).

23  
24 This RCRA permit modification request describes the transportation of the chemical  
25 munitions to the sampling facility, the extraction/sampling operations, preparation of the  
26 samples for shipment, and transport of the overpacked chemical munitions to the  
27 designated chemical HWSU.

## Acronyms/Abbreviations

1	
2	ACWA – Assembled Chemical Weapons Alternatives
3	BGAD – Blue Grass Army Depot
4	BGCA – Blue Grass Chemical Activity
5	BGCAPP – Blue Grass Chemical Agent-Destruction Pilot Plant
6	BIF – Boilers and Industrial Furnaces
7	CAFS – Chemical Agent Filtration System
8	CAIRA – Chemical Accident/Incident Response and Assistance
9	CAIRAP – Chemical Accident/Incident Response and Assistance Plan
10	CCTV – closed circuit television
11	CD – is a designation/name for a Hazardous Waste Storage Unit/Igloo
12	cfm – cubic feet per minute
13	CLA – Chemical Limited Area
14	CP – command post
15	CPC – chemical protective clothing
16	CWC – Chemical Weapons Convention
17	CTF – Chemical Transfer Facility
18	DAAMS – Depot Area Air Monitoring System
19	DICDI – diisopropyl carbodiimide stabilizer
20	DOD – Department of Defense
21	DOT – Department of Transportation
22	ECBC – Edgewood Chemical Biological Center
23	EDT – Explosive Destruction Technology
24	EE – Environmental Enclosure
25	EOC – Emergency Operations Center
26	EPA – Environmental Protection Agency



## **Acronyms/Abbreviations** (continued)

GB – nerve agent sarin, isopropyl methylphosphonofluoridate

GH – is a designation/name for a Hazardous Waste Storage Unit/Igloo

H – blister agent; Levinstein: bis(2-chloroethyl) sulfide or 2,2' – dichlorodiethyl sulfide

HAZWOPER – Hazardous Waste Operations and Emergency Response

HDPE – high density polyethylene

HEPA – high efficiency particulate air

HW – hazardous waste

HWMTP - Hazardous Waste Management Training Program

HWSU – Hazardous Waste Storage Unit

IAW – in accordance with

IC – Incident Commander

IRFC – Initial Response Force Commander

ISCP – Installation Spill Contingency Plan

KDEP – Kentucky Department for Environmental Protection

LO – is a designation/name for a Hazardous Waste Storage Unit/Igloo

MINICAMS® – Miniature Continuous Air Monitoring System

MSDS – Material Safety Data Sheet

N001 – Kentucky Hazardous Waste code for GB

N701 – Kentucky Hazardous Waste code for GB Lab waste

NRT – near real-time

OC – Operations Center

OJT – on-the-job training

OSC – On-Scene Coordinator

OSHA – Occupational Safety and Health Administration

PDS – personnel decontamination station

PEO, ACWA – Program Executive Office, Assembled Chemical Weapons Alternatives

## **Acronyms/Abbreviations** (continued)

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POP – performance oriented packaging  
PPE – personal protective equipment  
RCRA – Resource Conservation and Recovery Act  
RDT&E – Research, Development, Test and Evaluation  
SAA – Satellite Accumulation Area  
SDS – spent decontamination solution  
SDS – Safety Data Sheet  
SOP – standing operating procedure  
SPCCP – Spill Prevention Control and Countermeasures Plan  
SRC – single round container  
STEL – short-term exposure limit  
TBA – tributylamine stabilizer  
VSL – vapor screening level  
WPL – worker population limit

## **Part B: Facility Description** [401 KAR 38:090, Section 2 & 40 CFR §270.14]

The General Facility Description (B-1 through B-7) is identified in the following Modules:

a. General description of Blue Grass Army Depot (BGAD) conventional mission operations is located in Module II, Part B of BGAD Hazardous Waste Facility Permit, Resource Conservation and Recovery Act (RCRA) Hazardous Waste Storage Permit Renewal Application for Conventional Munition Related Items, Environmental Protection Agency (EPA) ID # KY8-231-820-105 dated October 2015.

b. General description of the Chemical Limited Area (CLA) is located in Module III, Part B of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items, EPA ID # KY8-231-820-105 dated October 2015. The RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items is also known as the Chemical Storage Permit Application.

The BGAD RCRA permit application is prepared in a modular format addressing various depot and tenant operations. BGAD renewal permit for Modules I (Entire Facility Permit Section (F)), Module II (Conventional Storage Permit Section (N)), and Module III (Chemical Storage Permit Section (C)) was issued on March 17, 2016. A separate permit modification request to add Explosive Destruction Technology (EDT) Facility (Permit Section (E)), and Mustard agent (H) Sampling Operations (Permit Section (M)) to BGAD RCRA permit was issued 23 September 2016.

This permit modification request for Agent Sampling Operations to BGAD RCRA permit references specific parts of the renewal application. To facilitate the review of this permit modification request, BGAD renewal application (Modules I, II, and III) will be available for reference during the public comment period.

### **c. Agent Extraction/Sampling Operations**

The Chemical agent munitions currently stored at BGAD will be treated/demilitarized at Blue Grass Chemical Agent–Destruction Pilot Plant (BGCAPP). Sampling of agent from a select number of these munitions is required to support the development of laboratory analytical methods for the BGCAPP project. To properly prepare the Laboratory for plant operations, Sarin (GB) agent hydrolysate produced from munitions-grade agent containing both tributylamine (TBA) stabilizer and diisopropyl carbodiimide (DICDI) stabilizer is desirable.

The sampling facility will be located in the CLA of BGAD. Within a permitted chemical Hazardous Waste storage Unit (HWSU), the selected munitions will be placed into a Single Round Container (SRC) also known as an overpack. The overpack/SRC will be moved to a flatbed truck and secured, transported to the sampling facility, placed in an Environmental Enclosure (EE), and monitored. Inside the EE, the munition will be

1 removed from the SRC and placed into a glovebox. The EE and glovebox will be under  
2 engineering controls. Within the glove box, the 8 inch GB round will be drilled, tapped,  
3 sampled, and sealed. GB will be transferred from the munition to a calibrated container  
4 and then into a Department of Transportation (DOT) bottle/container (see Figure D-6).  
5 Once the sampling operation is completed, the munition and DOT bottle will be cleared  
6 and removed from the glovebox. The munition will be placed back into an overpack,  
7 and transported to a designated chemical HWSU for storage until demilitarization  
8 operations begin at BGCAPP. The samples will be prepared for shipment and  
9 transported to a designated chemical HWSU for temporary storage awaiting shipment to  
10 ECBC's Chemical Transfer Facility (CTF). The sample will be managed under 40 CFR  
11 261.4 [Exclusions], (d) [Samples] and (e) [Treatability Study Samples].  
12

### 13 **B-8. Public Participation**

14

15 A public meeting will be held following submittal of this permit modification request to  
16 introduce and explain this modification request (i.e., adding the Agent Sampling Facility  
17 and transportation of chemical agent munitions).  
18

19 In a separate submittal, the Kentucky Department for Environmental Protection (KDEP)  
20 will be provided the following:  
21

- 22 a. A summary of the pre-permit modification request public meeting.
  - 23 b. A list of attendees.
  - 24 c. Copies of written comments or materials submitted at the meeting.
- 25

### 26 **B-9. Fees**

27

28 An existing grant from Assembled Chemical Weapons Alternatives (ACWA) to KDEP  
29 Division of Waste Management includes monies to pay the fee for filing and review of  
30 this Class 2 BGAD RCRA Permit Modification. No additional monies are required.  
31

**Part C: Waste Analysis Plan** [401 KAR 38:090, Section 2(3), 34:020, Section 4 & 40 CFR §264.13(b)]

Module III, Part C of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items, referenced in Part B of this document is incorporated by reference. Module III provides details on the chemical munitions to be sampled during this operation.

The wastes to be managed during this operation are 8-inch GB filled projectiles (see Figure D-5) that are currently stored in BGAD chemical HWSUs and secondary waste generated during the operation and site closure.

The 8-inch fill GB filled projectiles at BGAD do not contain energetic materials.

Process knowledge and RCRA characterization sampling and analysis will be conducted to ensure proper waste identification, management, and listing of hazardous waste.

Hazardous wastes will be managed in accordance with (IAW) RCRA waste management requirements and BGAD's RCRA Hazardous Waste Storage and Treatment Permit. Hazardous wastes will be placed into containers that meet the performance-oriented packaging (POP) requirements for the materials to be contained in accordance with DOT requirements.

Wastes that may be generated during the drilling & sampling process include, but are not be limited to:

- Drill bits and metal shavings
- Sampling equipment
- Glassware
- Tubing
- Spent carbon and high efficiency particulate air (HEPA) filters from the glovebox
- Spent carbon and high efficiency particulate air (HEPA) filters from the EE
- Diesel fuel, used motor oil and filters from diesel generators and compressors
- Personnel decontamination station (PDS) Wastes and Spent Decontamination Solutions (SDS)
- Used personal protective equipment (PPE)
- Monitoring wastes, which may include gloves, general lab waste (KimWipes, vials, towels, etc.), and spent solvents such as isopropyl alcohol and acetone
- Miscellaneous solids such as wipes, cloths, and absorbed wastes from spill clean-up activities

- Miscellaneous liquid wastes such as chemical or supply spill material or other fluids
- Lab Waste associated with GB sampling operations (N701)

Spent carbon and HEPA filter exposed to agent will be managed as hazardous waste (N001).

**Part D: Process Information** [401 KAR 34:180, 38:150, and 34:190, Sections 1 & 3 & 40 CFR §264.170-179, 270.15, 264.190, and 264.192(a)]

Chemical Agent (GB)-filled 8-inch projectiles (figure D-5) that are currently stored at BGAD will be treated/demilitarized at Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP). Sampling and analysis of agent from a select number of these munitions is required to support the development of analytical methods for the BGCAPP project.

The selected chemical projectiles will be placed into an overpack (single round container (SRC)) (see figure D-6) prior to removal from a chemical Hazardous Waste Storage Unit (HWSU). The overpack rounds will be moved from the chemical HWSU, placed onto a flatbed truck, transported to the sampling facility, and unloaded. The overpack munitions will then be moved into the Environmental Enclosure (EE) structure and monitored. The projectiles will be removed from the overpack and placed into a glovebox inside the EE structure.

Within the glove box, the 8 inch GB round will be drilled and tapped, and sampled. GB will be transferred from the munition to a calibrated container and then into a Department of Transportation (DOT) bottle. Once the sampling operation is completed, the munition and DOT bottle will be cleared and removed from the glovebox. The munition will be placed back into an overpack, and transported to a chemical HWSU until demilitarization operations begin at BGCAPP. The samples will be prepared for shipment and transported to a chemical HWSU "GH" for temporary storage awaiting shipment to the Chemical Transfer Facility (CTF).

The sampling operation is projected to take approximately 6 work days. If additional projectiles are required to be sampled, or if unexpected down time occurs, the projected time line will be extended.

A flatbed truck will be used to transport the overpack projectiles from and to the chemical HWSU "GH". Transport is restricted to daylight hours. Transport of chemical munitions is regulated as treatment under Kentucky Revised Statutes [KRS 224.50-130(5)]. Part A of BGAD's Kentucky Hazardous Waste Permit Application has been updated to reflect the Class 2 Modification request for sampling and transportation of the chemical agent projectiles.

The sampling operations/permit action are to include movement of the chemical (GB) filled projectiles. Movement of the chemical filled items for sampling will only occur during daylight hours. The number of munitions in the EE will be limited to the number of rounds to be sampled in one day. Once sampled, the items will be sealed, decontaminated, removed from the glovebox, monitored for GB to the WPL of 0.00003 mg/m<sup>3</sup>, overpacked, and transported to chemical HWSU "GH".

1 This RCRA permit modification request includes overpacking the chemical projectiles at  
2 the chemical HWSU, transportation of overpacked chemical filled projectiles from the  
3 HWSU to the EE facility, sampling of the projectiles, placing the samples into DOT  
4 bottles, overpacking the projectiles, transporting of the overpack projectiles to a  
5 designated chemical HWSU, temporary storage of the samples, and shipment of the  
6 samples.

7  
8 This operation will be performed under the Federal and the Commonwealth of Kentucky  
9 hazardous waste regulations. Part A of this RCRA Permit Modification Request  
10 provides the hazardous waste numbers associated with the projectiles to be sampled.

11  
12 Sampling of the chemical filled projectiles will be the only operation conducted inside  
13 the EE, therefore, other portions of the KDEP checklist (e.g., for storage, landfills, waste  
14 piles, incinerators) are not applicable. Following this Part D are copies of the  
15 referenced Figures.

16  
17 ACWA-BGCPP Site Project Manager or designees will be responsible for the  
18 management and oversight of the agent sampling operations to include but not be  
19 limited to loading/movement/unloading of the items for the sampling operations. The  
20 Operational Supervisor or designee will be in charge of the day to day operations of the  
21 sampling process and the proper handling of all material and wastes generated by the  
22 sampling operations.

## 23 24 **D-1. Containers**

### 25 26 **D-1a. Container Management**

27  
28 BGAD stockpiled chemical munitions are stored on pallets in permitted chemical  
29 HWSUs inside the CLA. The chemical HWSU are earthen-covered bisection cylindrical  
30 structures and constructed with concrete to ensure the safe storage and containment of  
31 munitions. The 8-inch GB filled projectiles at BGAD do not contain energetic materials,  
32 and are stored 6 to a pallet, secured with steel banding.

33  
34 The sampling facility will be located inside the CLA. GB-filled 8-inch projectiles will be  
35 sampled in a glovebox inside the EE. The number of agent filled projectiles in the EE at  
36 any given time will only be the amount that will be sampled that day. There will be no  
37 RCRA permitted storage areas at the sampling site. Secondary waste generated during  
38 sampling and analysis operations will be collected in a designated hazardous waste  
39 storage site (Satellite Accumulation Areas [SAAs] or a less than 90 day area) located at  
40 the sampling facility/site.

#### 41 42 **D-1a(1). GB-filled 8-inch**

43  
44 **GB-filled 8-inch projectiles (M426):**



1  
2 The 8-inch GB filled projectile, designated as M426, has a mass of more than 198  
3 pounds (90 kg). The 8 inch projectiles at BGAD are stored without a burster or  
4 supplementary charge assembly (figure D-5). The projectile body is forged steel; length  
5 with lifting plug is approximately 35 inches, and contains approximately 14.5 pounds of  
6 GB agent (≈6 liters).

7  
8 Once the projectile is sampled and sealed, it will be decontaminated, monitored to less  
9 than the WPL, overpacked into a SRC, and transported to a designated chemical  
10 HWSU "GH" where overpacked GB munitions are managed. Transport of the projectile  
11 and secondary waste shall be restricted to daylight hours. Normal sampling operations  
12 will be within daylight hours. Once a sampling operation begins, the operation will not  
13 stop until the item is overpacked in an SRC. If conditions arise to restrict the chemical  
14 munition or sample from being transported to and secured within a designated GB  
15 chemical HWSU the chemical item will be retained in the EE under engineering  
16 controls.

#### 17 18 D-1a(2). Wastes Generated During Sampling Operations

19  
20 Wastes that will be generated during the sampling operation include, but are not limited  
21 to:

- 22
- 23 • Drill bits and metal shavings
- 24 • Sampling equipment (labware, glassware, composite liquid waste samplers
- 25 (COLIWASA), plastic, rags, vials, syringes, etc...)
- 26 • Glassware
- 27 • Spent carbon and high efficiency particulate air (HEPA) filters from the
- 28 glovebox or EE
- 29 • Diesel fuel, used/waste motor oil and filters from diesel generators and
- 30 compressors
- 31 • Personnel Decontamination Station (PDS) Wastes and Decontamination
- 32 Solutions
- 33 • Used personal protective equipment (PPE)
- 34 • Monitoring wastes, which may include gloves, general lab waste (Kimwipes,
- 35 vials, towels, etc.), and spent solvents such as isopropyl alcohol and acetone
- 36 • Miscellaneous solids such as wipes, cloths, and absorbed wastes from spill
- 37 clean-up activities
- 38 • Miscellaneous liquid wastes such as chemical or supply spill material or other
- 39 fluids.
- 40

41 Wastes generated will be stored in containers in a hazardous waste storage area (SAA  
42 and/or a less than 90 day storage) located at the sampling facility. This waste  
43 generated is comparable to the waste produced in the management of the chemical  
44 weapons and the waste generated from the sampling operations will be managed IAW

1 Module III Part D-a(9) of the Chemical Storage Permit Application. Containers  
2 containing hazardous waste (HW) will be marked as "Hazardous Waste" with the  
3 Kentucky HW code of N001 for GB or N701 for lab wastes associated with the sampling  
4 operation. Hazardous waste containers will be kept closed except when waste is being  
5 added, removed, decontaminated, or monitored/sampled. Once the containers are full  
6 or no longer in use, they will be dated and moved to a permitted HWSU "LO"<sup>1</sup>, or a less  
7 than 90 day storage site. HW that is generated in this operation will be maintained in  
8 containers that conform to the minimum size necessary to house the waste generated  
9 and that meet or exceed performance-oriented packaging (POP). Once the sampling  
10 operation is complete the site will be closed IAW Part I of this permit modification  
11 request and all hazardous wastes transported to a permitted HWSU "LO". Hazardous  
12 waste will be transported for disposal IAW Module III, Part D-1 of the Chemical Storage  
13 Permit Application, referenced in the Part B.

14  
15 Upon completion of operations, all hazardous waste and hazardous waste residues will  
16 be removed. The glovebox, EE, and PDS will be decontaminated using an appropriate  
17 decontamination solution. Once monitoring indicates that these structures are less than  
18 the WPL, the carbon will be removed from the carbon filter units and the filter housing  
19 will be decontaminated and monitored to less than the WPL. All ECBC equipment and  
20 structures will then be removed from BGAD and returned to ECBC in Maryland. This  
21 equipment is reusable and not considered a waste. Closure wastes will be collected in  
22 containers at a hazardous waste storage area (SAA and/or a less than 90 day storage)  
23 located at the site. GB agent contaminated wastes will carry the Commonwealth of  
24 Kentucky hazardous waste number N001. Lab Wastes associated with treated GB  
25 wastes carry the Commonwealth of Kentucky hazardous waste number N701. Agent  
26 headspace monitoring or generator knowledge will be used for characterization.  
27 Containers will be transported to HWSU "LO" for disposal IAW BGAD Module III, Part  
28 D-1.

29  
30 D-1b. Containers With Free Liquids or F020, F021, F023, F026, and F027 Wastes

31  
32 Not applicable. There will be no RCRA permitted storage areas in the EE. The number  
33 of projectiles in the EE at any given time will only be the amount that will be sampled  
34 that day.

35  
36 D-1c. Containers Without Free Liquids or F020, F021, F023, F026, and F027 Wastes

37  
38 Not applicable. There will be no RCRA permitted storage areas in the EE. The number  
39 of projectiles in the EE at any given time will only be the amount that will be sampled  
40 that day.

41  
42 D-1d. Requirements for Ignitable or Reactive Wastes and Incompatible Wastes

---

1 "LO" – is a designation/name for a permitted Hazardous Waste Storage Unit.

There will be no RCRA permitted storage areas at the sampling facility. These wastes are not ignitable or incompatible. The number of projectiles at the sampling facility or in the EE at any given time will only be the amount that will be sampled that day.

## **D-2. Process Information: Tank Systems**

Not applicable. The EE will not include any tank systems.

## **D-3. Surface Impoundments**

Not applicable. The sampling operation will not include any surface impoundments.

## **D-4. Waste Piles**

Not applicable. The sampling operation will not include any waste piles.

## **D-5. Land Treatment**

Not applicable. The sampling operation will not include land treatment.

## **D-6. Landfill Design**

Not applicable. The sampling operation will not include landfills.

## **D-7. Incinerators**

Not applicable. The sampling operation will not include an incinerator.

## **D-8. Miscellaneous Units**

GB-filled projectiles that are currently stored at BGAD will be treated at BGCAPP. For BGCAPP Lab to perform complete method development work, validate the Destruction Efficiency clearing levels, and conduct Precision and Accuracy efforts on analytical methods, weapons grade GB agent is desired. In 4QFY16, it was determined that no munitions-grade GB exists in ECBC inventory to support Battelle's requirements. BGAD chemical stockpile contains the last known weapons grade GB in the US. To support BGCAPP operations, it has been decided to pull agent from BGAD stockpile to support remaining lab requirements prior to BGCAPP operations.

The proposed sampling does not meet the typical definition or model for a "Miscellaneous unit" under RCRA. However, Kentucky Revised Statute 224.50-130(5) defines "treatment" to include the manual or mechanical handling of the chemical agent compounds and of any munition containing the compounds during the processing of

munitions to remove the compounds, to separate munitions components, and to otherwise prepare the components and compounds for destruction, neutralization, dismantling, or decommissioning. Therefore, a permit modification is required for obtaining GB agent from chemical munitions to include transportation of the munitions.

Details on the agent sampling operation is listed in Part D and, in particular, Part D-12, Kentucky Miscellaneous/Other Units: Agent Sampling Operations

#### **D-9. Boilers and Industrial Furnaces (BIFs)**

Not applicable. The sampling operation will not include any BIFs.

#### **D-10. Containment Buildings**

Not applicable. The sampling operation will not include any containment buildings.

#### **D-11. Drip Pads**

Not applicable. The sampling operation will not include any drip pads.

#### **D-12. Kentucky Miscellaneous/Other Units: Agent Sampling Operations**

##### **D-12a. Description of Sampling Facility**

The sampling facility location will be next to Building 16550, which is west of the BGCAPP site and across from HWSU/igloo "CD"<sup>2</sup> located within BGAD's CLA (see Figure D-1). The typical sampling facility layout consists of a glovebox inside an EE, a PDS, a sampling facility command post (CP), a storage area, utilities, a monitoring house, and a laboratory (see Figure D-2).

##### **D-12a(1) Description of the Environmental Enclosure (EE)**

The EE has four sides, a roof, and is constructed of steel. The EE will be assembled on a compacted gravel area. The floor will be constructed with three separate layers and bermed to contain liquid spills and prevent run on/run off. The separate layers are a Geo-tec fabric (or similar material), followed by a 6 mil layer of plastic, bermed around the inside perimeter of the EE, then a 2 inch high density polyethylene (HDPE) interlocking flooring. There are two Chemical Agent Filtration Systems (CAFS) (one 6,000 cubic feet per minute [cfm] and one 2,500 cfm) associated with the sampling operation. During operations, the 6,000 cfm filter maintains negative pressure of both the EE and PDS structures. The 2,500 cfm maintains negative pressure on the glovebox within the EE. The CAFS will provide sufficient ventilation under engineering

---

<sup>2</sup> "CD" – is a designation/name for a permitted Hazardous Waste Storage Unit.

controls to maintain the glovebox, EE, and PDS at a negative pressure and prevent the uncontrolled release of chemical agent vapors to the environment. Figure D-3 is a typical photo of an EE and PDS. Figures D-8 and D-9 are typical drawings of 6,000 and 2,500 cfm CAFS.

#### D-12a(2) Description of the Personnel Decontamination Station/Structure (PDS)

The PDS is used for workers to enter and egress the EE. It is an extension of the EE and consists of a PPE drop location followed by hot zone to cold zone shuffle pans of the appropriate decontamination solution(s) and water. The PDS will be assembled on a gravel area. The floor will be constructed with three separate layers to contain liquid spills and prevent run on/run off. The separate layers are a HDPE, 6 mil poly plastic sheeting, and a geo text fabric sheet (or equivalent material). Adhesive is used to attach the PDS structure to the EE structure.

During operations, the 6,000 cfm filter maintains negative pressure of both the EE and PDS structures.

When entering the enclosure, personnel will be dressed in the appropriate PPE dictated by the monitoring levels reported by the MINICAMs Personnel. Personnel will request access to the PDS/EE through the Command Post (CP). Once access is granted, personnel will enter through the entry door located in the PDS.

When exiting the enclosure personnel will notify the CP that they will be exiting the enclosure. Personnel exiting the enclosure will not be required to gain permission from the PDS team lead to exit if MINICAM results are below the action level. If MINICAM results are above the action level, operations personnel will request permission to exit the PDS. Once permission is granted the PDS team will process personnel through the PDS.

Personnel will be monitored IAW a Site Specific monitoring plan [the Site Specific Air Monitoring Plan for the Sampling Operation in Support of the Blue Grass Chemical Agent – Destruction Pilot Plant (BGCAPP) Located on the Blue Grass Army Depot (BGAD) (Attachment D-2)]. The most current copy of the monitoring plan will be available at the sampling location.

#### D-12a(3) Description of the Glovebox

The glovebox is a sealed container that is designed to allow the items (projectiles and DOT bottles) to be manipulated in a separate controlled atmosphere. Built into the sides of the glovebox are gloves arranged in such a way that the user can place their hands into the gloves and perform tasks inside the box without breaking containment. Part or all of the box is transparent to allow the user to see and perform the manipulated (sampling) within the glovebox. Figure D-4 shows a typical glovebox.

1  
2 The glovebox is maintained under negative pressure and includes both carbon and  
3 HEPA filtration to capture agent vapors. The glovebox is maintained under negative  
4 pressure utilizing the 2,500 CFM filtration system. The duct work from the glovebox  
5 passes through a port within the EE structure. The glovebox will be certified by ECBC  
6 Safety and Health officials to verify proper glovebox ventilation and filter function before  
7 sampling operations begin. Proper ventilation will be verified by operators prior to use  
8 each day. Audible and visual alarms will indicate loss of negative pressure. The  
9 glovebox is designed to capture the entire liquid volume of a projectile or DOT bottle.

10  
11 D-12a(4) Description of Monitoring the PDS, EE, and at mid-bed and exhaust of the  
12 CAFS

13  
14 Monitoring for GB agent, using near real time (NRT) monitoring with Miniature  
15 Continuous Air Monitoring System® (MINICAMS®) and Depot Area Agent Monitoring  
16 System (DAAMS) for confirmation, will take place IAW with the Site Specific monitoring  
17 plan (Attachment D-2). A MINICAMS® trailer will be located next to the EE. Monitoring  
18 for worker protection inside the EE and PDS and at mid-bed and exhaust of the CAFS  
19 will be initiated prior to the first item to be sampled being brought into the EE, and will  
20 continue until operations are completed.

21  
22 MINICAMS® are equipped with an alarm that is set to warn of potentially dangerous  
23 conditions. For operations, the alarm level for GB will be at 0.70 vapor screening level  
24 (VSL). MINICAMS® alarm levels are set to comply with Army guidance which requires a  
25 NRT instrument to alarm with a 95% confidence at the VSL. The VSL is equivalent to  
26 the absolute short-term exposure limit (STEL) concentration, but it is independent of a  
27 designated sampling time and may be used for worker protection/notification and to  
28 define the level of item cleanliness. The STEL is the maximum concentration to which  
29 unprotected workers may be exposed for up to 15 minutes. NRT monitoring uses a  
30 sample collection and analysis time of less than 15 minutes.

31  
32 During operations, monitoring of the PDS, EE, and the CAFS carbon mid-bed will be  
33 continuous. If agent is detected (at the alarm level) between the two carbon mid-beds,  
34 operations will be halted and the mid-bed monitoring point will be moved to the CAFS  
35 exhaust stack. The first bank of carbon will be removed and containerized for disposal.  
36 The second bed of carbon will become the primary bed and a new bed of carbon (3<sup>rd</sup>  
37 set) will become the secondary bed. Once the carbon beds are swapped out, the stack  
38 monitoring port will return to the carbon mid-bed.

39  
40 D-12a(5) Other

41  
42 The sampling facility will include an air compressor, power distribution and trailers for  
43 storage, and the ECBC analytical laboratory. A CP will be located on the site. This CP  
44 is the control/supervisor post for the operation facility. Closed Circuit Television (CCTV)

cameras and communication equipment such as radios or cell phones will be monitored from the CP. Normal personnel inside the CP will include the Operations Supervisor, Site Safety Representative, Operations Project Manager, and/or an ACWA representative.

#### D-12b. Transport the Munitions from Chemical HWSU to Sampling Location and Return to a Chemical HWSU Once the Sample is Acquired

The general process steps for movement and transporting of the chemical projectile to and from the sampling facility are identical to the steps identified in applications/Module: Module III, Part D-Tab 1 of the Chemical Storage Permit Application. The general steps are listed below.

Chemical munitions are stored on pallets in permitted chemical HWSUs inside the CLA. The chemical HWSUs are earthen-covered bisection cylindrical structures and constructed with concrete to ensure the safe storage and containment of munitions. The 8 inch GB projectiles are stored 6 to a pallet, secured with steel banding.

The general process steps for movement of the GB projectiles from the respective HWSU to the sampling facility, and back to a designated GB HWSU is as follows:

1. A 1,000 CFM carbon filter will be deployed to the respective chemical HWSU, tested, and attached prior to a planned operation.
2. First Entry Monitoring (FEM) will be performed.
3. Identify the projectile to be sampled
4. A forklift will be used to carefully remove pallets from stack. Caution will be exercised when approaching and lifting pallets. All forklifts shall have current load test/inspection due date as per Army requirements.
5. Ground guides (human spotters) shall be used and are intended to ensure that only the pallet or pallets being moved are engaged with the forklift tines.
6. Each worker is responsible for observing the actions and eyes of other workers for evidence of agent exposure, and observing items or containers for evidence of leakage.
7. Pallet will be moved with forklift tines as close to the floor as possible and one pallet high. Forklift may carry two horizontally banded pallets of projectiles during movement(s) inside the HWSU.
8. Pallet will be placed on the floor and un-banded.
9. Designated projectile/projectiles will be removed (non-leaking chemical munition) from the pallet and placed into an overpack/SRC.
10. The overpack projectile will be moved by hand (two person min) or fork lift from the HWSU and placed onto flatbed truck and secured.
11. Pallet will be re-banded and placed back into normal storage configuration.
12. HWSU door will be closed and secured.
13. The overpacked projectile will be transported to sampling facility.

14. Overpacked projectile will be removed from flatbed truck and placed in EE.
15. The overpack will be monitored within the EE to ensure it did not leak during transportation.
16. Sampling operations will be performed.
17. Upon completion of the sampling operation, the projectile and sampling material will be cleared out of the glovebox. The plugged projectile will be placed back into the SRC. A hazardous waste label will be placed on the SRC and dated. The sample will be prepared for shipment.
18. The overpacked projectile and/or prepared samples will be moved by hand (two person) or fork lifted to the flatbed truck and secured.
19. Transport overpacked projectile and/or prepared samples to designated GB HWSU "GH".
20. First Entry Monitoring will be performed on the designated GB HWSU.
21. The overpacked projectile and/or prepared samples will be moved into the designated GB HWSU.
22. The overpacked projectile and/or prepared samples will be monitored to ensure no item leaked during transportation.
23. The overpacked projectile and/or samples will be placed into the designated HWSU.
24. HWSU door will be closed and secured.
25. The HWSU will be monitored according to BGAD permit.

#### D-12c. Description of the Process to Obtain the Material Inside the GB-filled Projectiles

The operations will occur within a glovebox located within the EE. The glovebox and the EE will be under engineering controls. Only one item will be processed at a time.

In general, the item to be sampled will be placed in the glovebox and secured. The remote drilling device (Monica® or equivalent system) will be attached to the item being sampled. [See Attachment D-1, a general Monica® brochure showing a typical remote drill system and drill bit assembly]. The device is affixed by utilizing suction pads. An operator in the EE facility CP or monitoring building will begin the remote drilling process utilizing the remote drilling control module and CCTV. After the device has completed the drilling process, operators will detach the drilling mechanism leaving the drill bit assembly attached to the munition (the drill bit assembly is designed to be used as a sampling port and plug). Operators will then use a tool to remove the sample disc from the center of the drill bit allowing access to the contents of the munition. With use of tygon (or equivalent) tubing and a peristaltic pump, GB will be transferred from the projectile into a graduated cylinder/beaker. The contents of the cylinder will then be transferred into a DOT bottle. The sampling port on the projectile will be capped with a stainless steel or Teflon fitting. The DOT bottle will be plugged.

Once the sampling is complete and closure is in place, the projectile will be decontaminated, removed from the holder, monitored, placed back into an SRC, and transported by flatbed truck to a designated GB HWSU.



1 In the event the remote drilling devices fail to operate, a handheld cordless drill will be  
2 used. The operator will control the handheld drill using the gloves built into the  
3 glovebox. The primary unit will be the remote controlled drilling device and the  
4 secondary device is the handheld drill.

5  
6 The general operational steps are as follows:

- 7 1. Place the item to be sampled within the glovebox.
- 8 2. Secure the item within the glovebox.
- 9 3. The area to be drilled will be carefully cleaned with sodium hypochlorite  
10 spray and alcohol wipes.
- 11 4. The appropriate sized drill bit assembly will be installed on the drilling  
12 device. The drill bit assembly includes a means to restrict the depth of  
13 intrusion into the metal surface of the munition body. The drill bit assembly  
14 is designed to pierce the surface of the item, seal, and provide a sampling  
15 port to collect the sample.
- 16 5. Using the primary remote drilling device, the device will be secured on the  
17 GB-filled item and connected to the control unit. The remote drilling will be  
18 conducted by an operator using CCTV and a remote drilling device  
19 controller located in the CP or monitoring shelter.
- 20 6. Operator will begin the remote drilling process utilizing the remote drilling  
21 control module and CCTV.
- 22 7. Operator will detach the drilling mechanism leaving the drill bit assembly  
23 attached to the item (the drill bit is designed to be used as a sampling port  
24 and plug).
- 25 8. Operators will use a tool to remove the sample disc from the center of the  
26 drill bit assembly allowing access to the contents of the item.
- 27 9. Utilizing tubing and a peristaltic pump (or equivalent devices), the operator  
28 will transfer/remove a specific amount of agent out of the munition into a  
29 graduated cylinder/beaker.
- 30 10. Utilizing the tubing and pump, agent is then transferred from the  
31 cylinder/beaker to a DOT bottle.
- 32 11. Decontaminate tubing and cylinder/beaker.
- 33 12. The sampling port on the drill bit assembly will be capped with a stainless  
34 steel or Teflon fitting (or equivalent closure devices).
- 35 13. The DOT bottle will be plugged.
- 36 14. The projectile will be decontaminated, removed from the holder, monitored,  
37 placed in an SRC, and transported by flatbed truck to a designated  
38 Chemical HWSU.
- 39 15. The DOT (sample) container with GB will be decontaminated, monitored,  
40 removed from the glovebox, prepared for shipping, and placed into  
41 temporary storage in a designated Chemical HWSU awaiting shipment to  
42 CTF. The sample will be shipped to the CTF on a bill of lading. The DOT  
43 bottles (samples) will be shipped under a bill of lading and chain of  
44 custody.

16. Note: If the agent in the round has solidified to a point where the necessary quantity of liquid (1-liter) sample cannot be drawn, the projectile will be sealed and processed out of the glove box, overpacked and returned to a designated HWSU. The sampling process will continue with another GB projectile with the same stabilizer until the proper amount of agent is collected.

#### D-12d. Shipment of Chemical Agent Samples

1. The samples will be moved to their respective storage locations, or directly packaged for shipment to ECBC CTF for sampling/analysis, evaluation, and/or Treatability Study.
2. The Department of Transportation (DOT) requirements for packaging, marking, labeling and placarding will be followed.
3. Under analytical-sample exemption (401 KAR 31:010 Section 4 (5 & 6)/ 40 CFR 261.4 (d & e)), the samples will be shipped under a bill of lading and chain of custody.
4. Once analysis and/or evaluation is/are completed, the remaining components of the samples will remain and be managed at ECBC CTFd. These samples will not be returned to BGAD.

#### D-12e. General Safety and Emergency Preparedness

To assure general safety and emergency preparedness, the site is equipped with emergency generators. The emergency generator will have the same capability as the primary generator to power the sampling facility. Fire extinguishers will be located inside the EE, lab, and vehicles. Appropriate decontamination solutions will be available for use for decontaminating both personnel and equipment. Medical support will be provided by BGAD. Standby rescue personnel will be available during sampling operations. Workers will be dressed in the appropriate level of protection IAW site/operational procedures.

Material spills at the sampling facility and/or agent spills contained inside the glovebox or EE will be decontaminated/remediated by on site trained personnel. The operation supervisor or their designee will report spills or upset conditions outside engineering controls to BGAD's Emergency Operations Center (EOC). For the GB sampling operations, the Operational Supervisor or their designee will serve as the On-Scene Coordinator (OSC).

For a chemical event (agent outside engineering controls), BGAD's Installation Emergency Response Plan, Annex C, Chemical Accident/Incident Response and Assistance (CAIRA) Plan will be followed. A copy of BGAD's CAIRA Plan is located in Module III, Part G of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste

1 Storage Permit Renewal Application for Chemical Munition Related Items referenced in  
2 the Part B of this document.

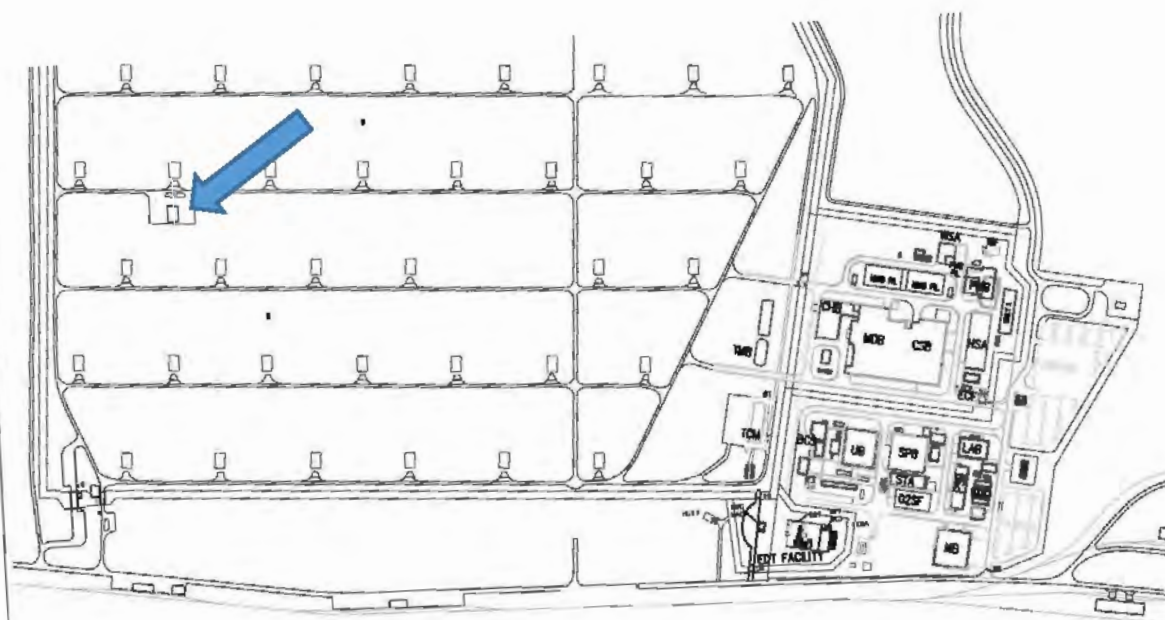
3  
4 The BGAD's CAIRA Plan constitutes Annex C of the BGAD Installation Emergency  
5 Management Plan. BGAD Commander or designee serves as the Initial Response  
6 Force Commander (IRFC) and Incident Command (IC) [also known as the Emergency  
7 Coordinator] from the onset of a non-CAIRA or CAIRA event. The BGCA Commander  
8 works under the operational control (OPCON) of BGAD Commander for all CAIRA  
9 activities. The BGAD Commander has appointed qualified On-Scene Coordinators  
10 (OSCs). The OSCs will be the most qualified person on the scene for the situation  
11 present. For example, in the event of a chemical accident the most senior chemical  
12 person will establish on scene incident command; in the event of a security related  
13 incident, OSC will be performed by senior Directorate of Emergency Services first  
14 responder on the scene; and in the event of a fire, OSC will be performed by the senior  
15 firefighter first responder.

16  
17 D-12f. Information About Waste Generated During the Sampling and Analysis Process

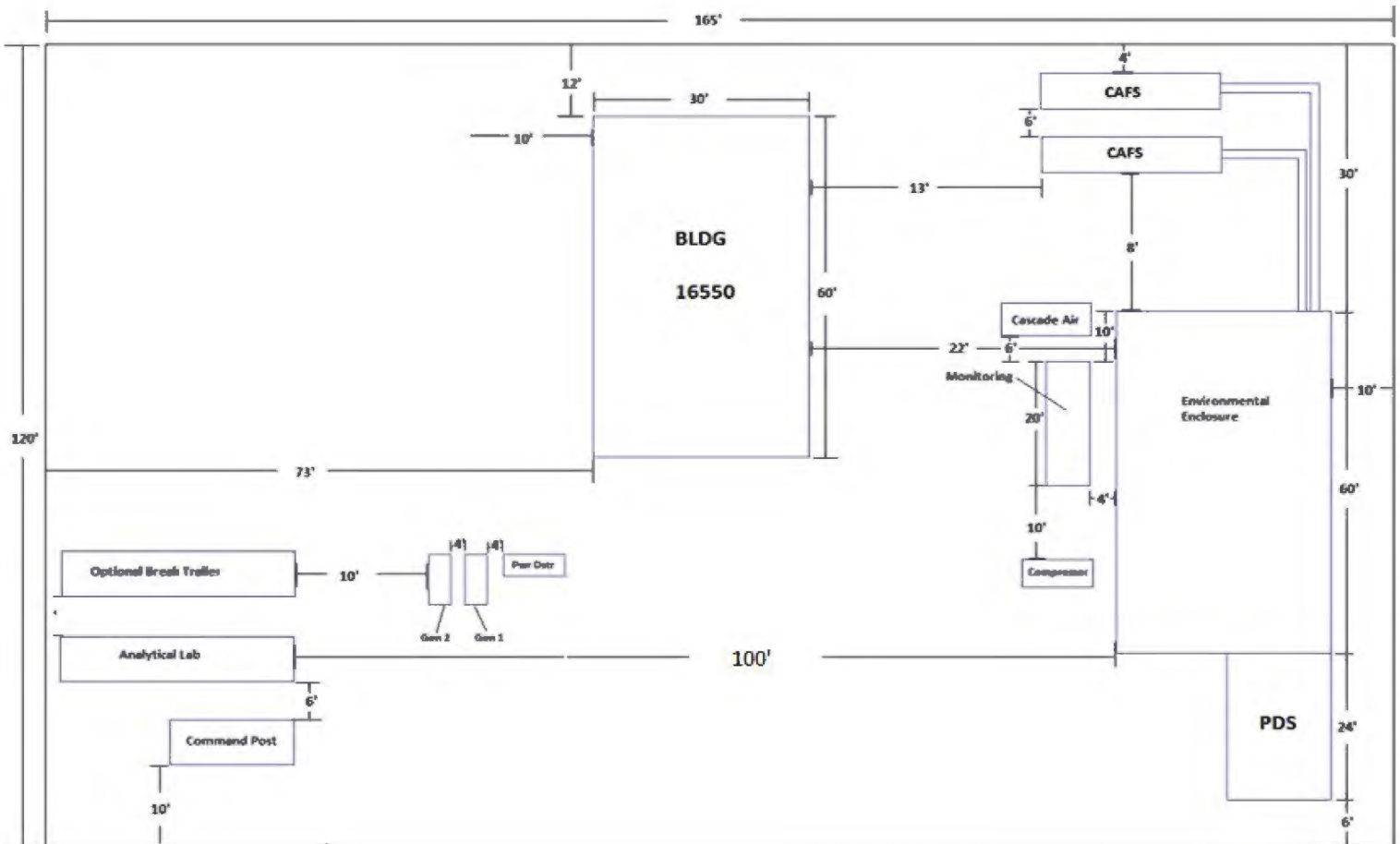
18  
19 Wastes that will be generated during the sampling operation and closure of the site  
20 include SDS, agent-contaminated plastic and PPE, agent-contaminated spent carbon  
21 and HEPA filters, laboratory wastes, and miscellaneous agent-contaminated metal  
22 parts. Hazardous wastes will be collected in containers in a SAA or less than 90 day  
23 storage area located at the site, followed by transport to HWSU LO for disposal IAW  
24 Module III, Part D-1 of the Chemical Storage Permit Application. Agent contaminated  
25 wastes carry the Commonwealth of Kentucky hazardous waste number - N001. Lab  
26 Waste associated with treated GB waste will carry Kentucky hazardous waste number -  
27 N701. Agent headspace monitoring or generator knowledge will be used for  
28 characterization.

29  
30 D-12g. Contingency

31  
32 Contingency Plan is covered in Part G of this document. Part G incorporates Part G of  
33 the BGAD RCRA Hazardous Waste Storage Permit Renewal Application for Chemical  
34 Munition Related Items (Module III). Authority and responsibilities of the IC are  
35 identified Part G of Module III, and BGAD's CAIRA Plan.



**Figure D-1. Sampling Facility Location**



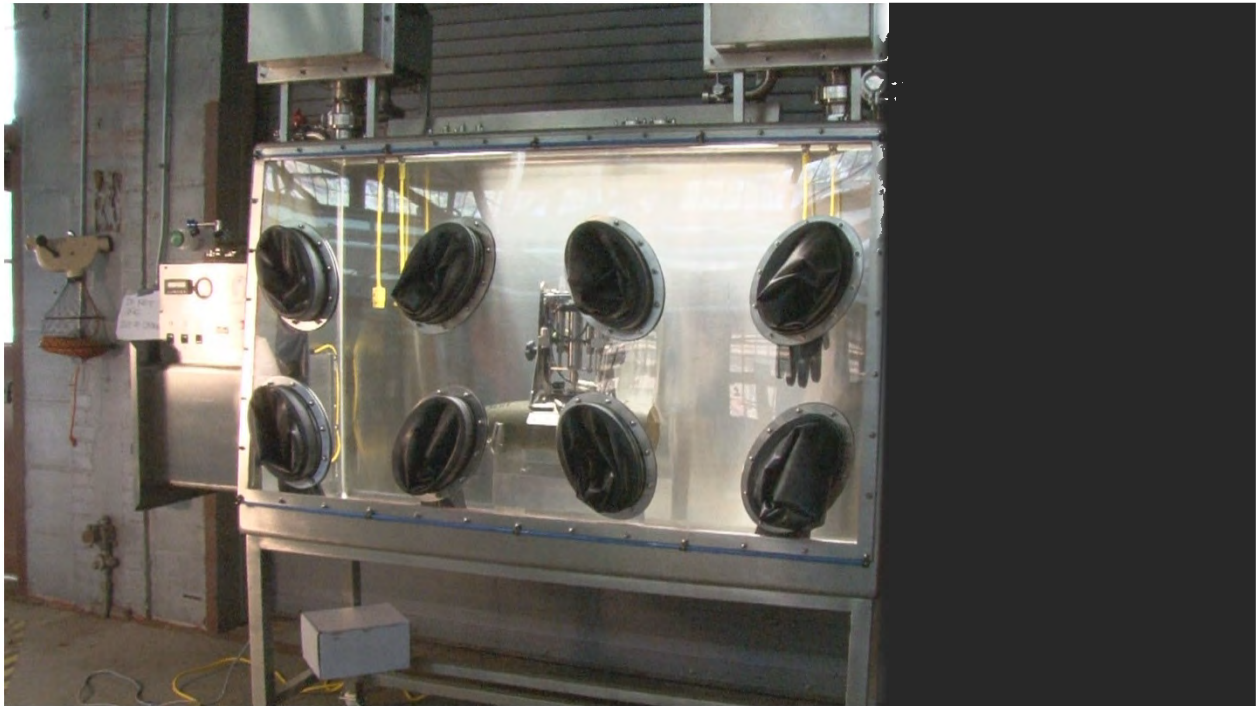
- 3 PDS – Personnel Decontamination Station
- 4 CAFS – Chemical Agent Filtrations System
- 5 C/Air – Cascade Air Supply

**Figure D-2. General Sampling Facility Layout**  
(Actual layout may vary from the layout above)



**Figure D-3.  
Typical Photo of Environmental Enclosure (EE) and  
Personnel Decontamination Station (PDS)**

1



2

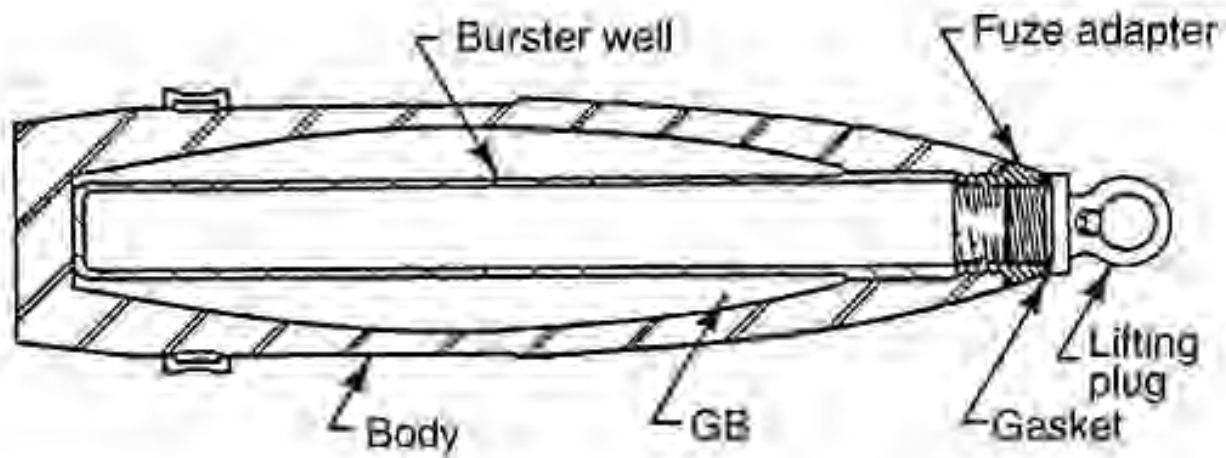
3

4

5

**Figure D-4.  
Typical Glovebox**





**Figure D-5**  
**Typical**  
**8-Inch GB Filled Projectile**  
**(M426)**

The 8-Inch GB Filled Projectiles at BGAD  
Do Not Contain Energetic Materials



1



2

**Figure D-6**

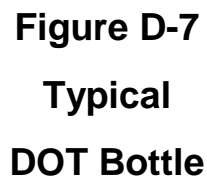
3

**Typical**

4

**Single Round Container  
(SRC)**

5



D-20

Figure D-8 Typical 6,000 cfm filter unit; NTS  
D-21

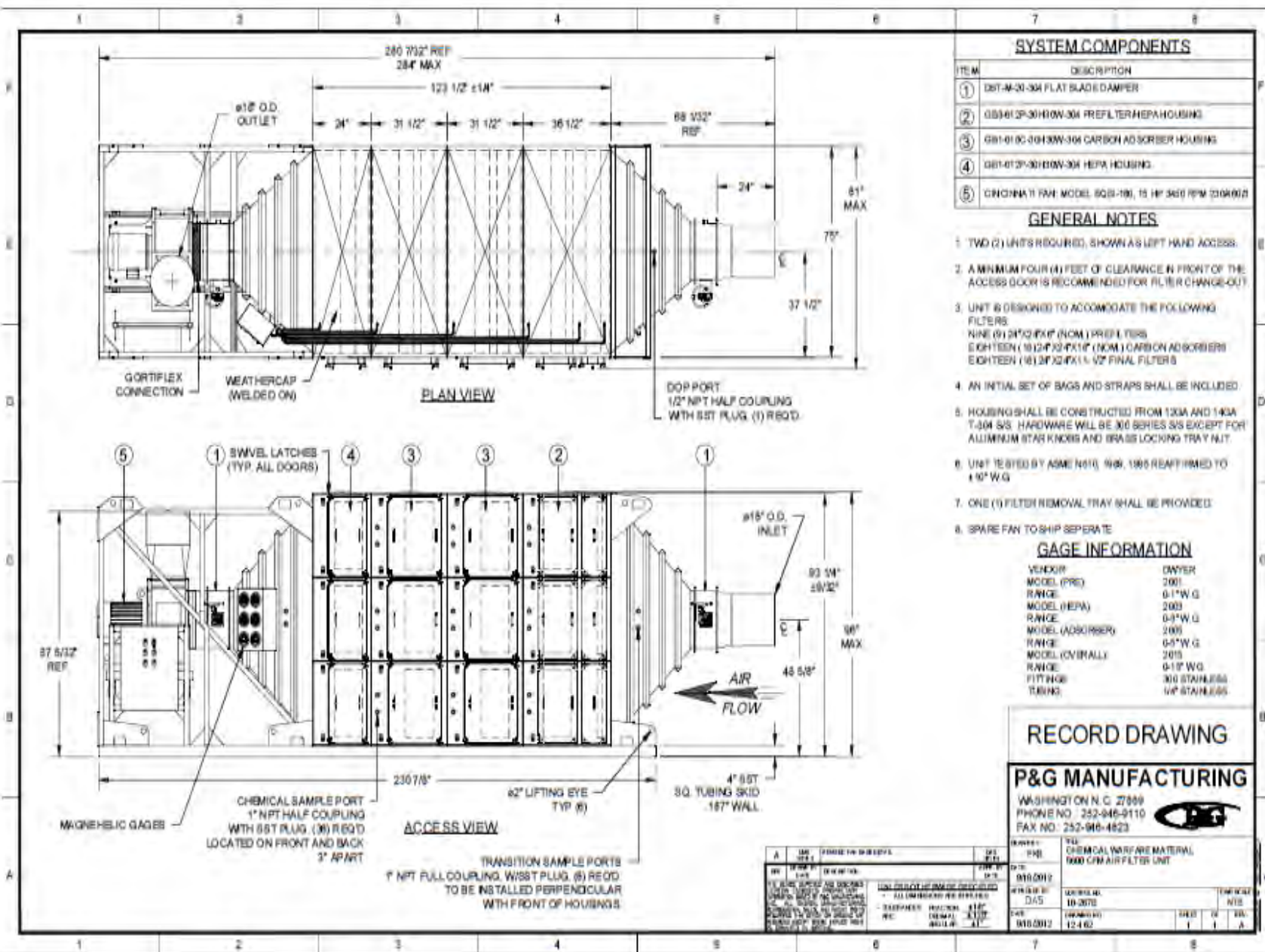
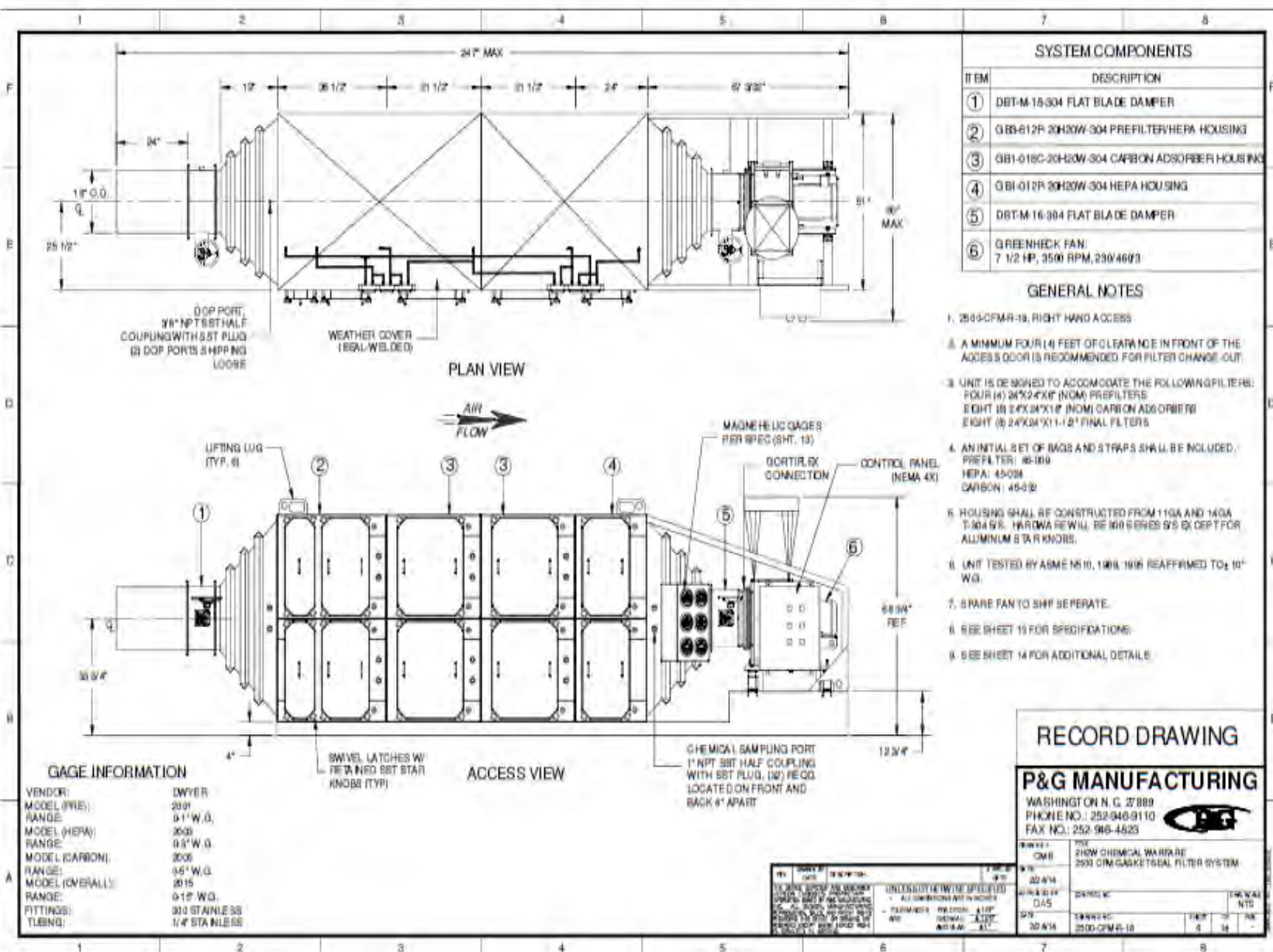


Figure D-9 Typical 2,500 CFM filter unit; NTS







**Monica Remote Case  
Entry System**  
CBW Sampling & Disposal





## A new way of thinking about CBW Disposal.

**Fast sampling & disposal using  
invasive technology**

The MMIC Monica equipment is the first system to offer a complete solution for the disposal of CBW in conventional or improvised devices. Utilising innovative technology it is the only equipment capable of invasively interrogating any device without leakage into the surrounding environment. One seal penetration gives access for sampling, disposal or visual investigation - CBEX has never been simpler.

**100% Certainty**

Most CBW threats will be deployed or stored in a sealed container but standard chemical agent monitors depend on an agent release into the environment for them to function. Non-invasive detection methods, such as neutron activation analysis will provide information on the elemental composition of materials but not direct evidence of their chemical structure. The only totally reliable technique for the analysis of the contents is to take a physical sample. Monica offers a field proven capability to sample and dispose of any chemical or biological threats, regardless of vessel without contaminating the environment.



IEDs or conventional CBW sampling & disposal.



Sample all sizes of device in any orientation.



In-situ decontamination or decant agent from the device.



Applications

- Conventional CBW or CBIED sampling and disposal.
- Sampling of any chem/bio agents or TICs. Gas, liquid or powder.
- In-situ decontamination or neutralisation without agent release.
- Separation of agent and explosive elements.
- Further investigation using endoscopes or other devices.


**Attachment D-1.**  
**General Monica® Brochure Showing a Typical  
Remote Drill System and Drill Assembly (sheets 1 of 2)**



## Monica Remote Case Entry System


### CBW Sampling & Disposal

#### 4 Step Operational Sequence




**Step 1 - Attach**

Using Monica's unique vacuum system the drilling head can be attached to any diameter of target regardless of shape or surface condition. An experienced operator can fix Monica in less than 30 seconds after arrival. The drilling head has no significant EM or RF signature



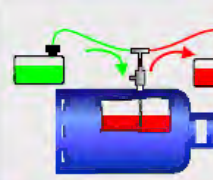
**Step 2 - Drill**

Monica's innovative drilling system can drill any metal (including stainless steel) or plastic in under 2 minutes. The compressed air motor cools the probe and target surface as it drills. The whole operation can be completed from up to 500m away with simple controls which provide feedback to the operator.



**Step 3 - Sample**

The MMIC sampling system can extract a sample of any known agent in gas, liquid or powder form. Drip free seals ensure no agent is released. Once sampled the syringe contents can be analysed quickly by Raman spectroscopy. The result can be double checked using GCMS on the physical sample if required.



**Step 4 - Dispose**

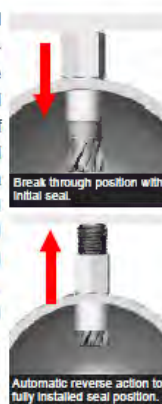
Using the same penetration for the sample, the agent can be pumped from the target for disposal using the MMIC MATS system. Alternatively decontaminant can be pumped into the target for in-situ disposal. The system can handle even the most viscous substances.

#### Advantages

- **Fast** - Disposal under 20 minutes from arrival.
- **Simple** - Designed to be used intuitively in full NBC protective clothing.
- **Portable** - Can be easily carried by 2 man-team.
- **Safe** - System ensures no agent release in the event of a power failure.

#### Complete Sealed Solution.

The equipment is designed to insert a gas-tight self-sealing probe through the target casing. It can deal with a wide range of materials including metal and plastics over a considerable range of wall thickness. Once installed the probe gives fully sealed access for sampling, extraction and in-situ neutralisation of the contents.



Power is supplied by compressed air from standard SCBA cylinders making the system man-portable. It can be deployed by a 2 man team in under 5 minutes.

#### Current Users of the Monica System.

- UK MoD Dstl
- UK SIBCRA team
- US Army
- US ECBC
- SWEDEC
- Australian IRR
- Classified Users

#### Performance Data

Power	1hp compressed air motor
Materials	All metals, composites, plastics & wood
Agents	All, including powders and viscous liquids
Target Dimensions	Wall Thickness: 1.6mm to 20mm Diameter: 75mm to flat plate
Target attachment	Flexible, vacuum feet
Max Internal Pressure	120psi
Drilling Time	1 to 3 minutes

#### Further Information.

More information can be found at [www.mmic-eod.co.uk](http://www.mmic-eod.co.uk) or contact us as [mail@mmic-eod.co.uk](mailto:mail@mmic-eod.co.uk)

Attachment D-1 (cont.).  
General Monica® Brochure Showing a Typical Remote Drill System and Drill Assembly (sheets 2 of 2)

**Attachment D-2.**

**Site Specific Air Monitoring Plan  
for the Sampling Operation in Support of the  
Blue Grass Chemical Agent – Destruction Pilot Plant (BGCAPP)  
Located on the Blue Grass Army Depot (BGAD)**

*The most current copy of the Facility Monitoring Plan  
will be available at the Sampling Facility*

## **Attachment D-2**

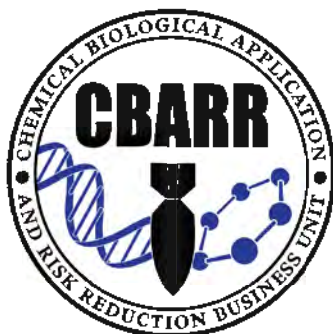
20 June 2017  
GB Sampling Extraction Operations,  
Permit Modification Request  
*The most current copy of this document  
will be available at the sampling facility*

**EDGEWOOD CHEMICAL BIOLOGICAL CENTER**  
**CHEMICAL BIOLOGICAL APPLICATIONS AND RISK REDUCTION**  
**ENVIRONMENTAL MONITORING LABORATORY**

**SITE SPECIFIC AIR MONITORING PLAN**  
**FOR GB SAMPLING OPERATION IN SUPPORT OF**  
**THE BLUE GRASS CHEMICAL AGENT-DESTRUCTION PILOT PLANT (BGCAPP)**  
**LOCATED ON THE BLUE GRASS ARMY DEPOT (BGAD)**

**June 2017**

**Revision A**



**U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND**



**FOR BLUE GRASS ARMY DEPOT GB SAMPLING EXTRACTION OPERATION**

**June 2017**

**Revision A**

Approved By:

**X**

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Record of Change

Revision A: document

### Acronym List

AEL- airborne exposure limit  
BGAD- Blue Grass Army Depot  
BGCA- Blue Grass Chemical Activity  
BGCAPP- Blue Grass Chemical Agent-Destruction Pilot Plant  
CAFS- Chemical Agent Filtration System  
CBARR- Chemical Biological Application and Risk Reduction  
CMA- Chemical Materials Agency  
CP- Command Post  
DAAMS- Depot Area Air Monitoring System  
DA PAM- Department of the Army Pamphlet  
ECBC- U.S. Edgewood Chemical Biological Center  
EDT- Explosive Destruction Technology  
EE- Environmental Enclosure  
EML- Environmental Monitoring Laboratory  
GB- Sarin (Isopropyl methanefluoro-phosphonate)  
IOP- Internal Operating Procedure  
LCOs- Limiting Conditions of Operation  
LMQCP- Laboratory and Monitoring Quality Control Plan  
MCCF- MINICAMS Confirmation  
MCP- Monitoring Concept Plan  
MINICAMS or MC- Miniature Continuous Air Monitoring System  
NRT- Near Real Time  
OPCW- Organization for the Prohibition of Chemical Weapons  
PDS- Personnel Decontamination Station  
PPE- Personnel Protective Ensemble  
QC- Quality Control  
STEL- Short Term Exposure Limit  
VSL- Vapor Screening Level  
WPL- Worker Population Limit

## **1.0 INTRODUCTION**

This document serves as the site-specific air monitoring plan to support the GB sampling operations confirming agent type of munitions to be destroyed at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) Explosive Destruction Technology (EDT) Facility. This plan addresses the air monitoring requirements as specified in the U.S. Army Chemical Materials Agency (CMA) Programmatic Monitoring Concept Plan (MCP), the CMA Programmatic Laboratory and Monitoring Quality Assurance Plan (LMQAP), and the U.S. Army Edgewood Chemical Biological Center (ECBC) Environmental Monitoring Laboratory (EML) Laboratory and Monitoring Quality Control Plan revision 2, December 2011.

## **2.0 OBJECTIVE**

This plan establishes the policies, objectives, and responsibilities for the execution of the monitoring program to support sampling operations for the BGCAPP. The plan identifies the chemical of concern and describes the rationale for monitoring strategies and equipment used during operations.

The objectives of site monitoring are:

- Provide worker and environmental protection by conducting analyses for the chemical of concern and,
- Provide early warning of potential releases of the chemicals of concern.

## **3.0 MONITORING RESPONSIBILITIES**

The responsibilities of the ECBC EML are:

- Provide guidance on monitoring operations conducted on site.
- Provide certified equipment, methods, and personnel capable of generating defensible monitoring data to be incorporated into the ECBC EML 40-year database.
- Provide trained and certified personnel to operate air monitoring and laboratory equipment.
- Perform monitoring procedures as outlined in the project scope of work, EML laboratory quality assurance programs, and this monitoring plan.
- Collect and retain all air monitoring data generated during this project.
- Conduct project-specific on-site air monitoring and sample analyses to support operations.

## **4.0 CHEMICALS OF CONCERN**

The chemical of concern for this operation is the nerve agent sarin (GB).

### **4.1 AIRBORNE EXPOSURE LIMIT (AEL)**

An airborne exposure limit (AEL) is a general term that describes the maximum allowable air concentrations for occupational and general population exposure to chemicals. AELs for chemical warfare agents are published in the Department of the Army Pamphlet (DA PAM) 385-61 (2008) Table 2.1.

**Table 1: Airborne Exposure Limits for the Chemical of Concern**

<b>Chemical Name</b>	<b>Abbreviation</b>	<b>CAS Number</b>	<b>STEL/V SL</b>	<b>WPL</b>
Sarin, Isopropyl methanefluoro-phosphonate	GB	107-44-8	0.0001 mg/m <sup>3</sup>	0.00003 mg/m <sup>3</sup>

#### **4.1.1 Worker Population Limit (WPL)**

The WPL is the maximum allowable 8-hour time-weighted average concentration that an unmasked worker could be exposed to for an 8 hour workday, 40 hours per week, for 30 years without adverse effect. There is no health significance from a single or short-term exposure at this concentration. Low level monitoring using either a near real-time (NRT) monitor or a historical monitor is conducted if unmasked workers are present in an area where chemical agent contamination may be present.

#### **4.1.2 Short Term Exposure Limit (STEL)**

The STEL is the maximum concentration to which unprotected chemical workers may be exposed for up to 15 minutes. ECBC conducts near real-time (NRT) monitoring using a sample collection and analysis time of less than 15 minutes. Therefore, NRT monitoring is technically conducted at the vapor screening limit in areas where chemical agent may be present. This monitoring is designed as an early warning system to notify workers of possible chemical agent in the environment.

#### **4.1.3 Vapor Screening Level (VSL)**

The VSL is equivalent to the absolute STEL concentration, but it is independent of a designated sampling time and may be used for worker protection/notification and to define the level of item cleanliness.

### **5.0 GENERAL MONITORING APPROACH**

EML personnel will conduct monitoring for a variety of purposes, as described below. A summary of monitoring locations is provided in Table 2. NRT monitoring will be performed using Miniature Continuous Air Monitoring Systems (MINICAMS®) operated

in accordance with EML Internal Operating Procedure (IOP) MT-2. Depot Area Air Monitoring System (DAAMS) monitoring will be performed using EML IOP MT-11.

DAAMS will be used for both historical and NRT alarm confirmation purposes. Historical DAAMS monitoring will be performed in accordance with Table 2. Historical DAAMS samples are collected daily and analyzed. Confirmation DAAMS samples will be collected concurrently with all NRT locations except for the PDS location. DAAMS will be immediately available at the PDS location, but only activated if required. Confirmation DAAMS are only analyzed in the event of a collocated NRT alarm.

### **5.1 Work Space Monitoring**

Work space monitoring (NRT and confirmation) will be performed in the workspace at the front of the glove box and at the unpack area/sample table, within the environmental enclosure. Changes in Personnel Protective Ensemble (PPE) will be addressed in the work plan and the health and safety plan. Work space monitoring will serve to notify workers of chemical concentrations in the area.

Confirmation monitoring, to validate or invalidate a MINICAMS® alarm will use DAAMS tubes collocated at the NRT monitoring location.

### **5.2 Chemical Agent Filtration System**

Chemical Agent Filtration System (CAFS) will be used to ventilate the environmental enclosure. The dedicated MINICAMS® monitoring each CAFS will operate in conjunction with an automatic stream selection system that allows collection and analysis of samples at each of the three levels of the CAFS mid-bed to identify any agent migration past the first carbon bed. The stream lock feature will be enabled during normal operations. If three consecutive alarms occur at the mid-bed location, monitoring will be manually switched to the filter exhaust position of the filter unit. Each filter unit will have a dedicated MINICAMS® unit.

### **5.3 Personnel Decontamination Station (PDS) Monitoring**

A single MINICAMS® unit will be dedicated to provide monitoring for potentially exposed personnel and/or chemical casualties. A DAAMS will be placed within the PDS and be ready for activations should the MINICAM alarm. Therefore, confirmation DAAMS will be immediately available but only collected if required for NRT alarm confirmation.

### **5.4 Decontamination Verification Monitoring**

Decontamination verification monitoring is performed to determine the level of cleanliness of an item after it has been surfaced decontaminated by approved procedures. All items monitored to determine level of cleanliness shall be bagged or contained to trap vapors. The ECBC EML utilizes a headspace procedure for determining the level of cleanliness. This does not apply to a decontaminated liquid, detoxified liquid, soil, or a gas. Some items may be released from Government control

if appropriate monitoring is performed to below the General Population Limit (GPL) and all Federal, State and local provisions have been met.

## **6.0 SITE SPECIFIC MONITORING LOCATIONS**

Figure 1 shows the projected monitoring locations. The final layout and monitoring locations will be determined during the operational readiness review.

### **6.1 Glovebox**

A single MINICAMS® unit will be used to monitor the workspace in front of the glove box. DAAMS samples for MINICAMS® alarm confirmation will be co-located with the sample line for this location.

### **6.2 Unpack Area/Sample Table**

A single MINICAMS® unit will be used to monitor the area at/around the unpack area/sample table. DAAMS samples for MINICAMS® alarm confirmation will be co-located with the sample line for this location. This location may be used for headspace monitoring as required.

### **6.3 Personnel Decontamination Station (PDS)**

A single MINICAMS® unit will be used to provide monitoring for chemical casualties in the PDS.

### **6.4 Chemical Agent Filtration System (CAFS)**

A single MINICAMS® unit configured with a stream selection system will be used to monitor each filtration unit. Each unit will have up to 3 mid-bed locations and an exhaust location. The mid-beds will be the default monitoring location, with each level monitored sequentially. Upon 3 consecutive alarms at a mid-bed location, the MINICAMS® operator will manually set the stream selector to monitor the filter exhaust of the filter unit that went into alarm.

DAAMS samples for MINICAMS alarm confirmation will be collected at each CAFS location. Historical DAAMS samples will be collected at the inlet to the CAFS. If a common duct is used to connect multiple CAFSs, the historical sample will be located in the common duct.

### **6.5 Head Space Monitoring**

The MINICAMS® at the unpack area/sample table will also be available for head space monitoring for operational purposes and for decontamination verification as required. Head space monitoring is performed to verify that items are not actively off-gassing chemical agent. Decontamination verification monitoring must meet the requirements found in section 5.4. DAAMS may be used for headspace monitoring.

**Table 2: Monitoring Locations**

NRT Location No.	Location Description	MINICAMS®	NRT Confirmation (DAAMS)	Historical DAAMS (WPL)	Comments/reason for monitoring	Compliance Point
1	Glove box	Yes	Yes	No	Workspace Monitoring	No
2	Unpack Area/Sample Table	Yes	Yes	No	Workspace Monitoring and Headspace Monitoring	No
n/a	Historical workspace at CAFS inlet	No	N/A	yes	Historical monitoring of the EE	No
3-1 3-2 3-3 3-12	Filter 1, Midbed 1 Filter 1, Midbed 2 Filter 1, Midbed 3 Filter 1, Exhaust	Yes	Yes	No	Verify Midbed Integrity and Environmental Protection	Yes, (Filter Exhaust)
4-1 4-2 4-3 4-12	Filter 2, Midbed 1 Filter 2, Midbed 2 Filter 2, Midbed 3 Filter 2, Exhaust	Yes	Yes	No	Verify Midbed Integrity and Environmental Protection	Yes; (Filter Exhaust)
5	PDS	Yes	Yes (available)	No	Monitoring for potentially exposed workers/chemical casualties	No

## **7.0 Reporting Detections of Chemicals of Concern**

### **7.1 MINICAMS® Alarms**

MINICAMS® are equipped with an alarm that is set to warn of potentially dangerous conditions. For operational, the alarm level for GB is 0.70 VSL. MINICAMS alarm levels are set to comply with Army guidance which require a NRT instrument to alarm with a 95% confidence at the VSL. During operations (GB-item within the EE) monitoring will be continuous.

### **7.2 MINICAMS® Alarm Communication and Confirmation**

MINICAMS® alarm results will be communicated to the GB facility command post (CP). Actions taken regarding workers and site personnel will be dictated by the ECBC site safety representative/site supervisor. Three consecutive MINICAMS® alarms require DAAMS confirmation, in accordance with EML IOP MT-02, MT-11 and MT-13.

7.2.1 MINICAMS® Alarm – A single event when the MINICAMS® result exceeds the alarm set point. The CP is notified by the MINICAMS® operator. The operator reports the MINICAMS® reading in VSL units.

7.2.2 MINICAMS® Ring-off – Three consecutive alarms from a MINICAMS®. Confirmation is required for all chemical agent ring-offs except for head space monitoring.

7.2.3 Confirmed Ring-off – If DAAMS results confirm a MINICAMS® ring-off, the event is considered confirmed. The concentration report for the event will be based on the MINICAMS® readings, reported in mg/m<sup>3</sup>.

### **7.3 Suspension of Monitoring/ Alarm confirmation**

In cases where an area has been confirmed to contain agent vapors and appropriate safety measures have been implemented, reconfirmation (continued analysis of MINICAMS® confirmation samples) may be suspended at that location. The decision to suspend confirmation sampling will be based on guidance from the site safety representative and concurrence from EML/CBARR management or their designee. Reconfirmation will resume as soon as conditions return to normal based on guidance from the site safety representative and concurrence from EML/CBARR management or their designee.

### **7.4 Reporting Results from Multiple Methods**

If two class I methods report different values for the same item/sample/event, the greater of the two results shall be used.

## **8.0 DATA REPORTING**

The EML shall report daily analytical results in analytical/situation report. The following information will be included in the report if available: (1) date of analyses (2) sampling location (3) analyst name (4) EML field sample identification number (5) client sample



identification number (6) results for each analysis, including units. The daily analytical report will be retained on site during the sampling operations.

## **9.0 QUALITY CONTROL (QC)**

### **9.1 Certification**

#### **9.1.1 Method Certification**

Site specific method precision and accuracy studies will be performed before the start of operations, in accordance with the EML Laboratory and Monitoring Quality Control Plan (LMQCP, Revision 2, December 2011). Previous studies performed on site may fulfill this requirement. All methods used to support worker and environmental protection will meet ECBC EML class I method certification requirements. Waste evaluation methods shall meet the requirements outlined in the site waste analysis plan. Documentation of successful method certification will be available upon request.

#### **9.1.2 Operator Certification**

All individuals performing monitoring activities will be certified in accordance with EML certification requirements as described in the EML LMQCP (Revision 2, December 2011). Documentation of successful certification will be available upon request.

#### **9.1.3 Instrument Certification**

All instruments used to generate monitoring data will meet instrument certification requirements described in the EML LMQCP (Revision 2, December 2011). Documentation of successful certification will be available upon request.

### **9.2 Calibration and Challenge**

#### **9.2.1 MINICAMS® Calibration**

Calibration requirements for MINICAMS are found in EML IOP MT-02 and the EML LMQCP (Revision 2, December 2011).

#### **9.2.2 MINICAMS® Challenge**

After successful initial calibration, all MINICAMS® will be challenged before operations begin, every 4-5 hours during operations, and at the end of the operational day.

### **9.3 Corrective Action**

Corrective action will be initiated based on the results of routine internal QC checks. Corrective action will be initiated when potential or existing conditions are identified that may adversely affect data quality. Events that require corrective action include violation of approved analytical procedures, out-of-control conditions, and non-conformances as described in the EML LMQCP (Revision 2, December 2011). The need for corrective

action must be documented and reported to the ECBC site supervisor. The corrective action may be immediate or long term. An immediate corrective action may be the recalculation of results, reanalysis of samples, or repeat of sample collection. A long term corrective action may require an increase in the number of QC samples, more frequent calibration and checks, or replacing monitoring equipment.

#### **9.4 Data**

During the project, ECBC will maintain control over all results and data generated from the analyses. All monitoring operations will be conducted in accordance with the EML LMQCP (Revision 2, December 2011) and EML IOPs. ECBC will incorporate the data generated into the Environmental Monitoring Laboratory 40-year data storage program, should access to additional information be required.

#### **10.0 LIMITING CONDITIONS OF OPERATION**

Operations during this project are governed by limiting conditions of operation (LCOs). Each day the site manager/designee will determine that all LCOs have been met. The monitoring LCOs are: sufficient number of certified operators, sufficient calibration and challenge standards available, all instruments actively supporting operations are calibrated and in control, a sufficient number of instruments are available to support operations, sufficient confirmation/historical monitoring equipment is available. Sufficient numbers of personnel and equipment will be determined by the site manager or EML designee.

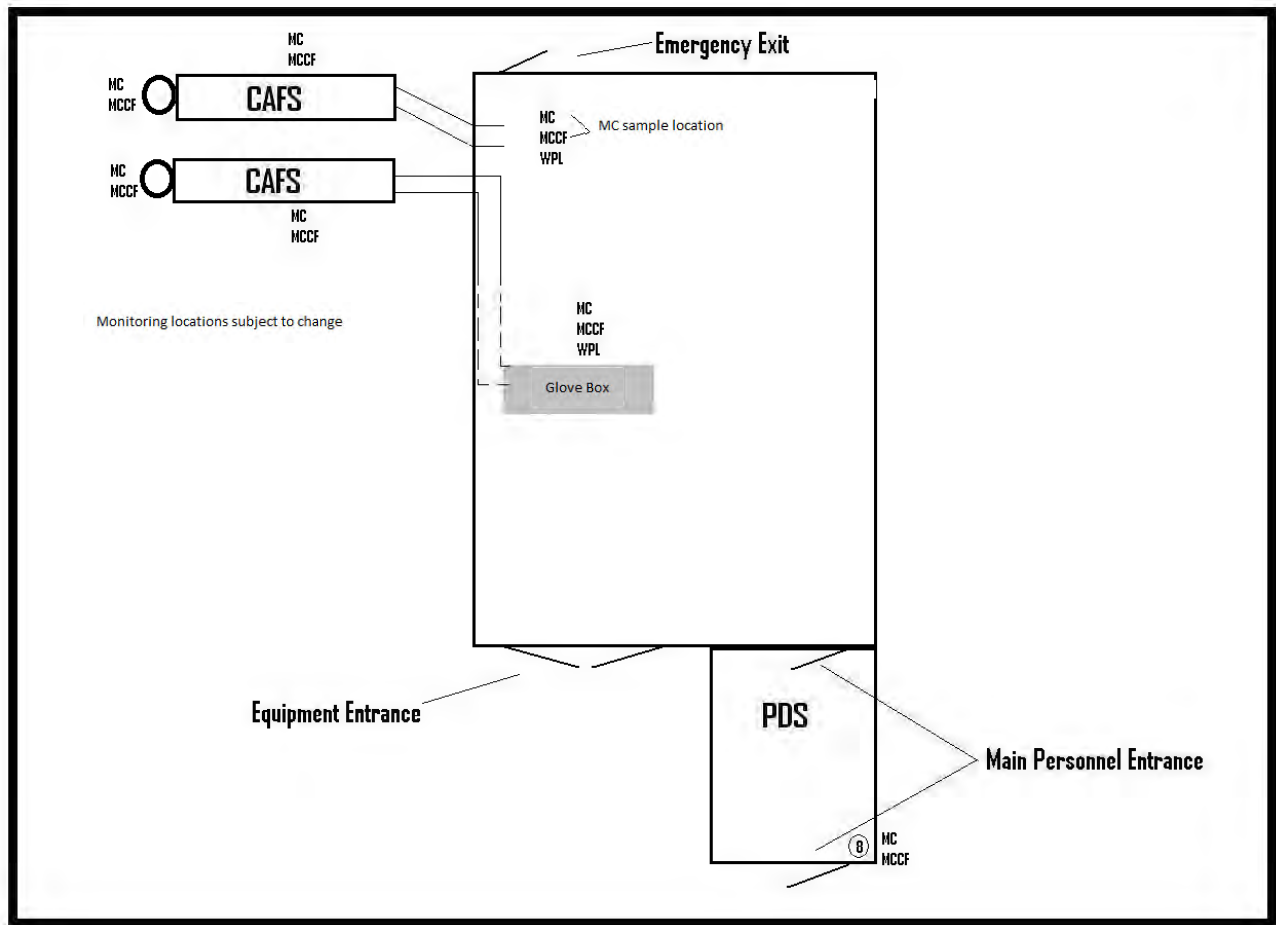


Figure 1: Typical Layout of Monitoring Locations

\* Final layout and monitoring locations will be determined during the operational readiness review.

CAFS - Chemical Agent Filtration System  
 EE - Environmental Enclosure  
 MC - Miniature Continuous Air Monitoring System  
 MCCF - Mini CAM Confirmation  
 PDS - Personnel Decontamination Station  
 WPL - Worker Population Limit

1 **Part E: Groundwater Monitoring** [401 KAR 35:060 & 40 CFR §265.92]  
2

3 Groundwater monitoring requirements are not applicable. The chemical operations  
4 within the EE are not land-based disposal units. The EE unit is designed to contain and  
5 control all releases, thereby preventing impacts to the groundwater. Although the EE  
6 unit manages chemical wastes that contain free liquids (i.e., projectiles and DOT  
7 bottles), the design and hazard prevention procedures of the EE unit provide protection  
8 for the environment and general public, eliminating the requirement for groundwater  
9 monitoring in the vicinity of the sampling facility.

10  
11 In addition, the CLA does not contain any identified solid waste management units that  
12 require groundwater monitoring.  
13

## **Part F: Procedures to Prevent Hazards [401 KAR 34:020]**

### **F-1. Security**

#### **F-1a. Waiver**

No waiver from the security requirements is requested.

#### **F-1b. Security Procedures and Equipment**

##### **F-1b(1). 24-Hour Surveillance System**

The facility is divided into two main areas in relation to operations. The administrative area, where there are no applications for permitted hazardous waste storage facilities, and the restricted area, which includes a highly secured area designated as the CLA. Chemical agent surety items are managed within BGAD's CLA which include storage, chemical operations to support storage and demilitarization, and demilitarization.

BGAD guards patrol all areas of the facility. There are security checkpoints at the entrance to each area. Personnel and vehicle access is limited at the main entrance (administrative area) which is guarded 24-hours/day.

Extraordinary precautions are taken to ensure the security of the CLA. The CLA is fully contained within the restricted area. The CLA is a secure area. Access to the area within the fenced perimeter requires special procedures. Requirements for visitors to obtain permission to enter include health tests, security, and safety procedures. Visitors requiring access into the CLA are provided an escort during their visit into the CLA.

All personnel are required to be cleared for entry into the CLA. All personnel must enter the CLA through a security check point. Vehicles entering and exiting the CLA are thoroughly inspected.

##### **F-1b(2). Barrier and Means to Control Entry**

Chemical munitions are stored in magazines/storage units designed to store energetic materials and meet munition storage requirements.

Chain link fences surround the CLA. These fences are separated by a clear area. Each fence is topped with barbed wire. This design forms a buffer zone surrounding the storage igloos in the CLA.

#### **F-1c. Warning Signs**

Posted at both entrances to the facility are warning signs that inform visitors and

1 personnel that they are entering a limited access government facility.

2  
3 The fences have warning signs posted every 50 yards. A sign at the entrance to the  
4 CLA indicates the presence of hazardous waste therein.

5  
6 At the entrances of the CLA there are signs that state "Hazardous Waste Storage Area  
7 Authorized Personnel Only." The hazardous waste signs at the CLA entrance are in  
8 lieu of placing signs on each HWSU or operations in the CLA.

9  
10 The CLA is located within BGAD's ammo restricted area. Within the ammo restricted  
11 area, personnel are prohibited from smoking and/or carrying open flame devices such  
12 as matches or other flammable items. The use of open flame without a flame permit is  
13 prohibited in this area. Smoking within the munition area is restricted to designated  
14 smoking areas only. With this restriction, the need to place "No Smoking" signs on each  
15 HWSU or operations is not considered necessary.

## 16 17 **F-2. Inspection Schedule**

### 18 19 **F-2a. General Inspection Requirements**

20  
21 ACWA will be in charge of the GB sampling operation. The GB sampling operation will  
22 occur within the CLA. BGCA is in charge of the HWSUs (igloos) within the CLA.  
23 BGAD's Environmental Office interacts with ACWA and BGCA's Environmental Office  
24 and has oversight of all hazardous waste-related activities at BGAD, BGCA, ACWA,  
25 and BGCAPP (main plant and EDT). The respective Environmental Office does  
26 announced and unannounced inspections for environmental compliance for their  
27 respective organizational activities.

28  
29 ACWA/BGCA's operational personnel participate in the implementation of pre-  
30 operational inspections of hazardous waste activities related to their waste generation  
31 within the CLA. The responsibilities for pre-operational inspections belong to the  
32 generators of waste, with each generator responsible for maintaining familiarity with the  
33 operational requirements. Deficiencies are dealt with directly when observed and  
34 reported to the appropriate management authority for direction if the issue is  
35 programmatic or requires management involvement.

36  
37 Inspections of the operation's facilities include the inspection of the structure for  
38 deterioration and the condition of the operation's secondary containment systems (EE  
39 structure, glovebox, and engineering control system). The current schedule for  
40 inspections and results of historic inspections are maintained by Permittee. Records of  
41 inspections are maintained by Permittee for a minimum of three years or until clean  
42 closure is obtained.

1 F-2a(1). Types of Problems

2  
3 Types of problems encountered with each type of equipment are annotated on the  
4 inspection schedule in the Table below.  
5

Equipment Type	Description	Types of Problems	Inspection Maintenance Frequency
Air Monitoring for GB sampling operations	Low level monitoring equipment	Chemical agent standard not in specified range; equipment inoperative	Before and after use daily
Vehicles	M12A1 Power Driven Decontamination Apparatus	Inoperative	Quarterly
	Forklift Trucks	Inoperative	6 months
	Vehicle preventive maintenance	Inadequate load capacity	Annually
	Lift testing		Annually
	Flatbed truck	Inoperative	Before Operation
Safety and Emergency Equipment	M12A1 Power Driven Decontamination Apparatus	Decon equipment inoperative Missing materials or items, leaks or deterioration	Quarterly
	Self-contained breathing apparatus (SCBA)	Inoperative pressure levels Seals and valves, missing parts	Annually
	Air Filters	Throughput deterioration	Semi-annual Before, During, and After Use
	Personal Protective Equipment (TAP butyl rubber suits or commercial equivalent)	Deterioration of fabric and/or seal seams	6 Months

Equipment Type	Description	Types of Problems	Inspection Maintenance Frequency
Safety and Emergency Equipment (Cont.)			
	Fire extinguishers - in vehicles	Not charged	Daily during Operating Days
	Fire pumps and hydrant system	Inoperable	Yearly
	Fire trucks	Inoperable	Weekly
	Emergency Spill Equipment: Broom, dustpan, drum	Not present Deteriorated	Weekly
	First aid equipment and supplies	Expired shelf life failed to replenish after use	Yearly After use
	Phone emergency telephone system (red phone system)	Inoperative or malfunctioning	Daily During Operating Days
Security Devices	Perimeter fence	Inoperative or malfunctioning	Twice Daily
	Backup power generator and lighting	Inoperative or malfunctioning	Weekly
	Intrusion detection system	Inoperative or malfunctioning	Quarterly
	Warning sirens	Inoperative or malfunctioning	Twice Monthly



Equipment Type	Description	Types of Problems	Inspection Maintenance Frequency
EE Unit / System: Glovebox, Engineering Control System	Treatment unit:  Sampling of Agent filled munitions under engineering controls within EE	Deterioration of EE Unit/system  Deterioration of containers, leaks/ vapor emissions.	Each Operational Day

## F-2a(2). Frequency of Inspections

The EE will be inspected each operational day. The EE will be air monitored during operations. Air monitoring for agent vapor is conducted in lieu of the RCRA-required visual inspections of the containers (munitions). Air monitoring has proven to be an effective early warning tool while adhering to the cardinal principle to limit the potential exposure to a minimum number of personnel, for a minimum period of time, and to a minimum amount of the hazardous material consistent with safe and efficient operations.

## F-2b. Specific Process Inspection Requirements

### F-2b(1). Container Inspections

Waste containers from the GB-sampling operation will be stored at a designated less than 90 day storage location and/or HWSU LO. The less than 90 day storage location and/or HWSU will be visually inspected weekly. N-listed hazardous waste containers within will be air monitored (cleared) to less than 1 Vapor Screening Level (VSL).

## F-2c. Remedial Action

In general, corrective actions for all discrepancies and equipment shortfalls are directed to the appropriate operational supervisor, directorates, and/or divisions for correction through direct discussion, work order, or memorandum. The observing authority handles concerns that don't require extensive response from other directorates/divisions immediately. Any problems impacting RCRA Permit compliance are reported to Permittee for immediate attention and resolution.

## F-2c(1). Leaking Agent Items (Liquid or Vapor Emitting)

When a leaking chemical munition (liquid or vapor emitting) is suspected or detected during visual inspection or air monitoring, the observations are reported immediately to BGAD/BGCA Operation Center (OC) (also known as the Emergency Operations Center (EOC)) by the operational supervisor or their designee, and contingency plan (CAIRA) operations are implemented. During visual inspections, if evidence of leaking liquid is found in a storage unit, the suspected liquid is tested with M-8 paper to determine the presence of agent. If the liquid is determined to be GB, the contaminated area is decontaminated and/or the chemical munition is overpacked. The leaking/vapor emitting chemical munition is located and the pallet containing the leaking/vapor emitting munition is moved to an operation point within the storage unit where the leaking item is then overpacked.

Decontamination mixtures are normally applied with dry wipes soaked in the mixture. This minimizes the generation of decontamination waste. Generally, less than one gallon of decontamination mixture is used. After decontamination, the outside of the container is cleaned with a dry wipe or other absorbent material.

The expended decontamination mixture, wipes, pallets, metal strapping, plastic throws, dunnage, and leather gloves are placed in a DOT approved container (typically a 55-gallon drum, but other sizes may be used). Care is taken that the containers selected are compatible for the characteristics of the waste being generated. The DOT container is relocated to a monitoring shed and the contents are air monitored to confirm that the agent detection level is less than 1 VSL for the respective agent. If the contents are not below the necessary level, the items are again decontaminated until less than 1 VSL has been reached. The containers are then sealed shut with the appropriate mechanism.

## F-2c(2). Grounding Protection System

The GB sampling ammunition structures and equipment will be grounded in accordance with National Electric Code, article 250. Prior to operations, the grounding protection system will be tested according to National Electric Code. If deficiencies are noted in the testing of the grounding protection system, the results will be reported to the GB sampling supervisor stating location, date inspected, resistance reading, and remarks including corrective actions taken or required. Correction must be made before operations can occur.

BGAD has a lightning warning system administrated by the EOC. This system will be used for lightning protection, in lieu of installing a lightning protection systems on the temporary (non-ammunition operational) structure.

The EOC sends out notifications to key staff and facilities when lightning is within 20

1 nautical miles (23 standard miles) of BGAD. Upon notification of an approaching  
2 thunder/lightning storm, personnel will place the operations in a safe configuration and  
3 evacuate to a safe location. Personnel will return to the operations after notification has  
4 been received from the EOC that the thunder/lightning storm is at a distance equal to or  
5 greater than 20 nautical miles.

#### 6 7 F-2c(3). Personal Protective Equipment (PPE)

8  
9 Deficiencies resulting from the inspection (testing) of PPE (TAP clothing, commercial  
10 equivalent clothing, or masks) could trigger repairs to include parts replacement and  
11 retesting. If the item cannot pass the prescribed inspection (testing), it is eliminated  
12 from further use. A "passed" item replaces the defective unit in inventory or is issued to  
13 the chemical worker.

#### 14 15 F-2d. Inspection Log

16  
17 Copies of inspection forms used in association with the hazardous waste management  
18 during the GB sampling operation will include, at a minimum, the following:

- 19  
20
- 21 • Date and time of inspection.
  - 22 • Name/signature of inspector.
  - 23 • Observations made.
  - 24 • Comments.
  - 25 • Remedial action requirements.

### 26 27 **F-3 Preparedness and Prevention Requirements**

#### 28 29 F-3a. Waiver

30 Hazardous waste management facilities are required to minimize the possibility of fire,  
31 explosion, or any unplanned sudden or non-sudden release of hazardous waste or  
32 hazardous waste constituents to the air, soil, or surface water, which could threaten  
33 human health or the environment. No waiver is sought to alter these requirements.

#### 34 35 F-3b. Equipment Requirements

##### 36 37 F-3b(1). Internal Communications

38  
39 Whenever hazardous wastes are being transferred or inspected, a two-way  
40 communication device (radio or cellular telephone) is available for the operators to use  
41 in the case of an emergency. The OC maintains radio communications with CLA  
42 personnel during all operations.

1 Guards within the CLA routinely carry two-way radios. Workers inside storage units  
2 work in pairs and must remain in sight of each other at all times. The respiratory  
3 protection masks allow talking. Personnel working inside the storage units with  
4 chemical agent are watched by someone outside the unit who is in communication with  
5 the OC or Security, and is able to report/respond to any problems.  
6

7 An accident, fire, or explosion will be signaled by an alarm activated by the OC. This  
8 siren is audible throughout BGAD. During a chemical accident/incident emergency, the  
9 primary means of continuing communication will be installed radio nets. (BGAD phone  
10 system will serve as the secondary communication system.) The radio nets are  
11 frequency modulated. Radio silence is declared except for chemical accident/incident  
12 emergency communications traffic.

### F-3b(2). External Communications

The guard areas within the CLA are equipped with telephones, which are part of BGAD telephone system. These telephones can also be used to access locations external to BGAD.

The two-way radio or cellular telephones can be utilized to call BGAD, BGCA, or ACWA personnel in emergency situations or conditions where additional assistance may be required. These personnel can use permanently installed telephones to:

- a. Contact other individuals or groups at BGAD to provide support.
- b. Contact Emergency Coordinator if an emergency exists.
- c. Contact off-site emergency response groups.

### F-3b(3). Emergency Equipment

A fire extinguisher is carried in all vehicles in the restricted area and is available to crewmembers entering HWSUs or operations. There is no water supply on site at BGCA's HWSUs or the sampling area. They are serviced by the facility fire department. The fire department has a tank truck with a 1,200-gallon capacity. A "brush" truck is available with a 250-gallon capacity. Additionally, there are two fire engine pumps with a total water capacity of 1,060 gallons.

Spill control equipment includes absorbent (socks or pads), brushes, brooms, and dustpans used to retrieve and containerize any spill contents.

During loading at the HWSU within the CLA and unloading and loading at the sampling facility, BGCA's M12A1 decontamination vehicle is on standby for deployment if an emergency occurs. This vehicle maintains a supply of decontamination chemicals necessary for emergency response.

### F-3b(4). Water for Fire Control

There is a fire hydrant near the entrance to the CLA and the flow rate of the hydrant is approximately 730 gallons per minute. The hydrant pumps are diesel backups.

### F-3c. Aisle Space Requirement

Aisle space is sufficient in the EE to allow for the unobstructed movement of personnel, fire protection equipment (fire extinguishers), spills control equipment, and decontamination equipment to any area where operations in an emergency may arise. Munitions are stored according to Department of Defense (DOD) ammunition requirements.

## **F-4 Preventive Procedures, Structures, and Equipment**

### **F-4a. Unloading Operations –Sampling Area within CLA**

When the sampling facility is ready to receive the chemical munitions for processing they will be overpacked and transported using a flatbed truck.

The unloading areas of hazardous waste management areas are graveled or paved for ease of maneuvering. Access of extraneous personnel will be restricted when loading/unloading chemical munitions, sampling, or processing.

The GB-filled projectiles to be sampled at the sampling facility will be transported in the same method. The item to be sampled will be overpacked and removed from the HWSU and placed/secured onto a flatbed truck. The truck will transport the overpack projectile to the sampling facility. Once the overpack projectile is unloaded and moved into the EE, it will be monitored. If monitoring (confirmed) indicates an upset condition during transportation, the movement will be reported as a leak outside engineering controls and the contingency procedures identified in Module III, Part G of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application will be followed. Transportation for the sampling operations will be restricted to daylight hours only.

The overpack chemical munitions are transferred by hand or by forklift to a transport vehicle (flatbed). The transport vehicle moves the items to the designated facility. The items are removed from the flatbed by hand or forklift and moved into a designated area within the EE. Once the item/items are sampled, the item/items will be overpacked and transported by flatbed to a designated Chemical HWSU.

### **F-4b. Run-Off**

The HWSUs and EE in the CLA are secure units designed for explosive materials and operations. All containers are kept closed. The storage units are designed to minimize run-off. Periodic maintenance is required to ensure continued protection. None of the facilities are in flood hazard zones. The EE floors system is bermed to prevent run off.

### **F-4c. Water Supplies**

BGAD obtains its drinking water from Lake Vega. The GB sampling facility does not drain into the Lake Vega drainage area. All spills would be contained within the facility and be immediately mitigated to preclude drainage from the facility.

### **F-4d. Equipment and Power Failure**

Hazardous waste storage facilities in the CLA are accessible to workers only during

1 daylight hours, thus reducing the impact of power failure on visibility and equipment  
2 operation.

3  
4 There is no electrical power supply to the EE facility. The EE facility will operate on  
5 independent generators.

6  
7 The security lighting around the CLA is powered through BGAD utilities system. There  
8 is a back-up generator in the event of a power failure. BGAD/BGCA maintains mobile  
9 light sets and electrical generators.

#### 10 11 F-4e. Personal Protective Equipment (PPE)

12  
13 Personnel entering the CLA will either wear or carry a protective mask. For  
14 administrative type areas, the mask may be readily available to the wearer instead of in  
15 a slung position. Each protective mask carrier is supplied with three Antidote Treatment  
16 Nerve Agent Autoinjectors nerve agent (GB or VX) antidote injectors for use in  
17 emergency exposure. All PPE is provided to the workers and must be in a serviceable  
18 condition and properly fitted to the wearer. Each worker required to wear PPE is given  
19 instructions on the care and inspection of each piece of equipment issued.

20  
21 Potential routes of entry of the agents are through vapor inhalation, ocular, skin  
22 absorption, and injection. Operational constraints when using PPE are employed in the  
23 CLA and based on the nature of the work performed and the type of protective  
24 equipment in use (i.e., butyl rubber suits have a limited wear time based upon ambient  
25 air temperatures and humidity to prevent injuries from heat exhaustion). The selection  
26 of protective equipment worn throughout operations is determined by a combination of  
27 air monitoring levels and mandates of standing operating procedures (SOPs) based  
28 upon risk level.

29  
30 Trained emergency personnel responding to a chemical event (accident or incident) or  
31 emergency situation will wear the level of protection that is indicated by the conditions  
32 that exist.

### 33 34 **F-5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes**

#### 35 36 F-5a. Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

37  
38 Hazardous waste areas in the CLA are protected from sources of ignition and/or  
39 reaction by restrictions of entry to the CLA of individuals in possession of sources of  
40 ignition and the following practices:

- 41
- 42 • Prohibition of open flames.
- 43 • Prohibition of smoking.
- 44 • Prohibition of work which generates frictional heat or sparks (electrical,

- mechanical, or static).
- Prohibition of storage of incompatible wastes in same room or location.
- Proper selection of individual transport and storage containers (design/material).

Wastes are stored in storage units designed to store energetic materials. Storage units are separated by at least 400 feet. Equipment used is spark and explosion resistant. Within the ammo restricted area, personnel are prohibited from smoking and carrying open flame devices such as matches or other flammable items. Gasoline-powered generators are positioned outdoors. Vehicles operating within the ammo restricted area are required to carry fire extinguishers.

Fire control is accomplished through security measures limiting ignition sources in the waste storage area and keeping ground cover minimized. Routine mowing in the CLA keeps the grass controlled and reduces the chance of fire during periods of drought.

#### F-5b. General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Wastes

Only munitions, miscellaneous munitions components, or items containing chemical agent (neat chemical agent [undiluted, full-strength (as manufactured) chemical agent or agent at concentrations above the RDT&E threshold level]) of the same type will be stored/managed in any given HWSU or less than 90 day storage area at any one time.

There is no mixing of chemical agent munitions/containers (GB, VX, or H) in a storage unit or operations. Only one type of agent munition is stored, processed, tested, and/or treated in a given hazardous waste unit at any one time.

#### F-5c. Management of Ignitable or Reactive Wastes in Containers

Hazardous waste management areas are more than 50 feet from BGAD property line.

#### F-5d. Management of Incompatible Waste in Containers

The GB sampling operations will only manage waste from the sampling of GB containing projectiles. Therefore no incompatible waste will be managed during this operation.



**Part G: Contingency Plan** [401 KAR 38:090, Section 2(7), 34:040, and 34:190  
Section 7 & 40 CFR §264.50-264.56 and 264.196]

As an owner and operator of hazardous waste treatment and storage facilities, BGAD has developed a Contingency Plan to minimize the hazards to human health or the environment from fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The proposed GB sampling operation and transportation are a chemical agent operation. The operation will be performed within BGAD Chemical Limited Area (CLA). For upset conditions involving GB agent outside engineering controls, the Permittee will follow the contingency procedures identified in Module III, Part G of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application.

Roles and responsibility for chemical agent events are addressed in Part G of Module III, and BGAD's Emergency Management Plan; Annex C; Chemical Accident Incident Response and Assistance (CAIRA) Plan. A copy of BGAD's CAIRA Plan is located in Module III, Part G.

The BGAD Commander serves as the IRFC, from the onset of a CAIRA event, and the BGCA Commander works under the operational control (OPCON) of BGAD Commander for all CAIRA activities. The BGAD Commander has appointed qualified OSCs. The On-Scene IC will be the most qualified person on the scene for the situation present. For example, in the event of a chemical accident the most senior chemical person will establish on scene incident command. In the event of a security related incident, IC will be performed by senior Directorate of Emergency Services first responder on the scene; and in the event of a fire, IC will be performed by the senior firefighter first responder.

The identification or notification of an actual or suspected chemical accident/incident initiates a CAIRA Plan response phase. Chemical events are reported by the operation supervisor, their designee, or the command post to BGAD/BGCA EOC who notifies BGAD Commander, who immediately assumes the role of IRFC and designates alternates. Immediate actions are taken to save lives, preserve health and safety, secure chemical agent, protect property, prevent further damage to the environment, and promote public confidence. In the event of any emergencies occurring at the GB sampling facility and/or any emergencies involving chemical agent, response actions will be carried out IAW the guidelines in BGAD's CAIRA Plan.

Hazardous material or hazardous waste (non-agent) spills at the GB sampling facility will be remediated by onsite trained personnel. Operation supervisor or their designee will notify the EOC and BGAD Environmental Office. The operation supervisor or their designee will provide remedial oversight and, if needed, assistance will be provided by trained government or contract personnel staff.

1  
2 Chemical agent spills within the EE or glovebox will be remediated by onsite trained  
3 personnel. The operation supervisor or their designee will notify the EOC and BGAD  
4 Environmental Office. The operation supervisor or their designee will provide remedial  
5 oversight and, if needed, assistance will be provided by trained government or contract  
6 personnel staff.

7  
8 The operational supervisor or their designee will record spills and remedial action in the  
9 operational log and notify BGAD Environmental Office.  
10

## **Part H: Personnel Training** [401 KAR 34:020 Section 7 & 40 CFR §264.16]

### **H-1 Outline of Training Program**

#### **H-1a. General Training**

Personnel involved with the handling of chemical munitions/hazardous wastes are required to complete combinations of on-the-job training (OJT) and/or classroom training to ensure they are competent to correctly and safely perform their duties within six months of initial assignment. Personnel who have not received initial training work under the direct supervision of a trained supervisor until completion of OJT and/or classroom training, and are not allowed to work autonomously during the handling of hazardous material.

Training will provide personnel with the necessary knowledge and skills to perform hazardous waste duties safely, efficiently, and in an environmentally sound manner. The training program prepares facility personnel for treatment operations, with emphasis on reducing potential risks to human health or the environment. This is accomplished by ensuring facility personnel handling hazardous waste can properly perform their assigned duties and responsibilities. In addition to providing training in the mechanics of the job functions, this training program provides facility personnel with a thorough understanding of the treatment operations, including the safety and emergency response operations. Refresher training will be conducted as required by environmental regulations or to update workers on new methods or equipment.

This training program meets the RCRA regulatory requirements by:

1. Providing specific training for various hazardous waste management positions.
2. Ensuring all personnel involved in ammunition operations and planning complete the training program prior to being assigned to duties involving ammunitions or explosives.
3. Providing training that ensures facility personnel are able to respond effectively to emergencies.
4. Ensuring facility personnel are trained in hazardous waste management practices.
5. Maintaining required documentation for the Facility.
6. Maintaining training records for Facility personnel for at least three years from the date last worked.

#### **H-1b. Specific Hazardous Waste Management Training**

Employee training is crucial to the accomplishment of the missions and the requirement to provide environmental training is a top priority. The Hazardous Waste Management

1 Training Program (HWMTP) is a formal program designed to enhance the  
2 environmental competencies of its participants and to promote responsible  
3 environmental practices throughout the organization. This training was developed and  
4 implemented for personnel involved in hazardous waste operations (GB sampling).  
5 Training requirements have been outlined for this training program and contain material  
6 for accomplishing these requirements.

7  
8 The HWMTP has evolved into a comprehensive approach of integrating the  
9 requirements to the RCRA, Occupational Safety and Health Act (OSHA), the  
10 Installation's (BGAD's) Spill Prevention, Control and Countermeasures Plan, the  
11 Chemical Accident/Incident Response and Assistance (CAIRA) Plan (CAIRAP), and  
12 other meaningful training. The primary purpose of the training is to ensure the  
13 employees have the skill to perform their assigned duties in a safe manner in order to  
14 protect themselves, other employees, the public, and the environment.

15  
16 40 CFR 264.16(d)(2) requires a written job description for each employee conducting  
17 hazardous waste operations. Position (job) descriptions are maintained and available  
18 with the respective organization.

19  
20 Job titles and duties will be consistent with the current duties and responsibilities for  
21 safely treating explosive components IAW applicable OSHA, RCRA, and military  
22 requirements. In general, all personnel working at the GB-sampling Facility that  
23 manage hazardous waste will be required to:

- 24  
25 1. Demonstrate the ability to understand and apply both oral and written  
26 instructions at a level appropriate to the assigned job.  
27 2. Possess the aptitude and attitude necessary to ensure compliance with  
28 environmental, safety, and job requirements.  
29 3. Be physically capable of doing the work.

## 30 31 **H-2 Scope and Application**

32  
33 Employees receive initial training in Chemical Surety and Hazard Communication.  
34 Employees who are involved in managing, storing, and/or handling of hazardous waste  
35 including those on temporary appointment, are required to complete hazardous waste  
36 management training. The types of duties an employee may engage in when dealing  
37 with hazardous waste include, but are not necessarily limited to, engineering, technical  
38 work, transportation, containerization, labeling, storage, identification, record keeping,  
39 emergency response, and treatment (GB sampling).  
40  
41

### H-3 Program Administration

#### H-3a. Recordkeeping/Reports/Documentation

Personnel training is documented and the appropriate records are maintained with their respective organization. Training records for current employees are kept for three years or until the operation is complete.

Environmental staff or a certified contractor will conduct the RCRA and hazardous waste management training. Training instructors used in the program are subject matter experts in the topic areas of instruction. Environmental Staff periodically attend RCRA and DOT courses to stay current on RCRA and hazardous waste management regulations as they apply to the mission or operations.

#### H-3b. Job Description

Hazardous waste training for new personnel is initiated when they start work and is normally completed within six months. Personnel are not allowed to work unsupervised until training requirements have been completed. Personnel are not permitted to respond to emergency response situations until training in the appropriate response is completed.

The Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Program is the initial training for those employees that are involved in Hazardous Waste operations and the annual refresher training is 8-hours. New personnel to hazardous waste operations will have successfully completed the training program within six months.

Training Officer or designated site personnel will maintain the following:

1. A list of job titles and positions with the name of each employee filling that position, and
2. A written job description for each position, which lists the required skills and hazardous waste management/handling duties that may be required.

It is the responsibility of the employee's supervisor or director to notify the training officer when an employee is to be added to or removed from the training program.

Generally, RCRA training requirements for 40 CFR Part 265 facility personnel will include the following:

- Elements of BGAD Chemical Accident/Incident Response and Assistance Plan (BGAD-CAIRAP).

- Communications or alarm systems.
- Operating procedures for using, inspecting, and turn-in of facility emergency equipment is conducted during visual inspections. Facility and monitoring equipment is maintained and replaced by Electronics Mechanic personnel.
- The use and limitations of PPE.
- Response to fires, explosions, groundwater contamination incidents, and shutdown of operations.

Employees that have been identified as performing hazardous waste duties have that expectation included in their job description. This description of hazardous waste duties may involve one or more of the following: management, coordination, engineering or technical work involving hazardous waste management equipment, programs or projects; and/or movement, containerization, storage, identification, recordkeeping, emergency response, treatment, and/or disposition of hazardous waste. Duties require the ability to interpret and implement environmental regulations, knowledge of hazardous waste products, safety regulations, the skill to effect regulatory requirements, and the ability to ensure proper management and/or handling of hazardous wastes.

#### **H-4 Emergency Response**

Emergency response will be handled IAW the “Blue Grass Army Depot Installation Spill Contingency Plan (BGAD-ISCP)” and/or the “Blue Grass Army Depot Spill Prevention Control and Countermeasures Plan (BGAD-SPCCP)”. If the accident/incident involves chemical surety material, the “Blue Grass Army Depot Chemical Accident/Incident Response and Assistance Plan (BGAD-CAIRAP)” will be implemented and will take precedence.

#### **H-5 Course Outlines**

The training program consists of initial training courses and each having an annual refresher training requirement. The initial courses are as follows:

- Chemical Basic course
- Hazard Communication Course
- RCRA Compliance and Hazardous Waste Management Course
- HAZWOPER.

The training program is a dynamic program that is updated in response to new information and changes in the regulations. Each course outline remains relatively stable but the content is revised as necessary to remain current.

## **H-6 Chemical Basic Course (Initial and Refresher)**

Below is a typical outline of the chemical basic course initial and annual refresher instruction block

### **H-6a. Chemical Munitions**

Descriptions of the different types of chemical munitions and their various configurations including packaging and storage.

### **H-6b. Chemical Personnel Reliability Program**

Identifies the positions that fall under the guidelines of Army Regulation 50-6 and provides a means of assessing the reliability of personnel in these positions.

### **H-6c. Classification and Effects of Chemical Agents**

Describes the types of nerve and blister agents, their physical characteristics, the physiological effects on the body, and the persistency of each agent.

### **H-6d. Protective Clothing**

Reviews protective masks, their proper use and care, and the different types of protective clothing and equipment available for protection from agents.

### **H-6e. Chemical Agent Alarms/Detectors/Monitors**

Describes the alarms for an agent emergency, the types of detection equipment used, and the monitoring methods used to detect and quantify agent concentrations.

### **H-6f. Self-Aid/First Aid and Decontamination**

Discussion of the different decontamination solutions for chemical agents and the proper use of the nerve agent antidote kit. Basic first aid is taught.

### **H-6g. Chemical Accident/Incident Control**

Discussion of the different levels of a chemical event/accident, the response procedures during an incident, and the various teams that respond.

## **H-7 Hazard Communication Course (Initial and Refresher)**

Below is a typical outline of the DOD hazard communication initial and annual refresher instruction block

## H-7a. OSHA Hazard Communication Standard

This lesson stresses that employees must be informed about hazardous chemicals in their workplace and be trained to work safely with them.

## H-7b. Physical Forms and Exposure Hazards

This lesson discusses the three basic physical forms: solids, liquids, and gases. Types of exposure hazards, which include physical hazards and health hazards, are discussed.

## H-7c. Types of Physical and Health Hazards

This lesson discusses physical hazards which are chemicals that cause explosion, fires, violent chemical reactions, or other hazardous situations. Health hazards and chemicals that can cause illness or injury when inhaled, swallowed, or through contact with the skin or eyes are also discussed.

## H-7d. Controlling Chemical Hazards

This lesson discusses the basic methods of controlling chemical hazards, which include engineering controls, PPE, and administrative controls.

## H-7e. Introduction to Safety Data Sheets (SDSs)/Material Safety Data Sheets (MSDSs) and SDS Physical Hazard Information

This lesson discusses the general layout of an SDS, where to find and understand the information in the physical data section, the fire and explosion hazard section, the reactivity data section, and the precautions for safe handling and use section. The SDS health hazard information lesson teaches how to find and understand the information in the hazardous ingredients section, the health hazards section, and the control measures section.

## H-7f. Using Labels and the Hazardous Chemical Inventory

This lesson discusses labeling requirements. Labels must contain all appropriate hazard warnings. The name must be the same on the label, the SDS, and the hazardous chemical inventory list. Hazardous chemical inventory lists must be available and kept up to date.

## **H-8 Hazardous Waste Management Course (Initial and Refresher)**

Below is a typical outline of the hazardous waste management initial and annual



refresher instruction block.

#### H-8a. RCRA, Federal, State, and Army Regulations

This block is a brief overview of various regulations, which also include hazardous materials regulations. Permit background at BGAD, permit training requirements, and the penalties that may be imposed for noncompliance are also discussed. RCRA regulatory, review, and local controls will be covered.

#### H-8b. Hazardous Waste Identification

This block discusses when a material becomes a solid waste, a hazardous waste, and gives an overview of chemical waste streams (N001, N002, or N003), and requirements of the hazardous waste label.

#### H-8c. Hazardous Waste Management

The focus here is on managing hazardous waste to include the permitted unit(s), less than 90-day accumulation, and satellite accumulation areas. A description of the information required for Waste Identification and Certification form is used to capture hazardous waste storage information that is presented during this training. Additional record keeping requirements, spill or release notification requirements, the permitted operations, and storage areas and hazardous waste movement between these areas are also covered.

#### H-8d. Mission Operating Procedures

This lesson discusses the importance of careful application of procedures called out for each activity undertaken in the CLA. Examples of environmental controls incorporated into the SOP are identified and reviewed.

#### H-8e. Waste Analysis

The lesson topics include the general requirements of the Waste Analysis Plan, hazardous waste characteristics, laboratory certification, and documentation of waste analysis.

### **H-9 Hazardous Waste Operations Emergency Response Training Program (HAZWOPER) (40 hour initial)**

Below is a typical outline of the HAZWOPER initial instruction block.

#### H-9a. Legal Rights and Responsibilities

1 The Legal Rights and Responsibilities is a focus on what is hazardous material/waste  
2 and the regulatory background is targeted.

#### 3 4 H-9b. Hazard Recognition

5  
6 Hazard recognition including basic principles of toxicology, hazard classes, material  
7 identification, placards and labels, chemical incompatibilities, and National Institute for  
8 Occupational Safety and Health pocket guide training.

#### 9 10 H-9c. Hazard control

11  
12 Hazard control including types of hazard control, emergency response plans, the  
13 incident command system, establishing site security and control, and the medical  
14 surveillance program.

#### 15 16 H-9d. Work Practices

17  
18 Work Practices with a focus on SOPs, material handling and transfer, spill control,  
19 equipment and vehicle operation, special control equipment, and confined space entry.

#### 20 21 H-9e. Personal Protective Equipment (PPE)

22  
23 Use and limitations of PPE including respirator and self-contained breathing apparatus  
24 (SCBA), characteristics and properties of chemical protective clothing (CPC),  
25 precautions when wearing CPC, inspection, maintenance and storage of CPC, and  
26 exercises in the use of CPC.

#### 27 28 H-9f. On-The-Job Training (OJT)

29  
30 Air Monitoring and environmental sampling including calibration and sampling protocols,  
31 with a review of sampling equipment, record keeping, and document control.

#### 32 33 H-9g. Decontamination

34  
35 Decontamination with a focus on the chemicals used and decontamination steps  
36 essential to decontamination of equipment, environmental media, and personnel. A  
37 decontamination exercise with available decon equipment and waste containerization  
38 resources is undertaken with training provided on waste accumulation, marking, and  
39 labeling.

#### 40 41 **H-10 HAZWOPER (8-hour Refresher)**

42  
43 Below is a typical outline of the HAZWOPER annual refresher instruction block. Any  
44 facility position (job) titles that participate in the actual clean-up at the incident/accident

1 site will have HAZWOPER.

2  
3 H-10a. Chemical Basic Course Review

4  
5 Chemical Munition Review.

6  
7 H-10b. Hazard Communication

8  
9 Hazard Communication Course Review.

10  
11 H-10c. Response to Fires

12  
13 Response to fires, non-agent spills, and explosions inside and outside the CLA,  
14 including response to groundwater contamination incidents.

15  
16 H-10d. Inspection

17  
18 Inspection, use, repair, and replacement of emergency/monitoring equipment including  
19 the EE systems.

20  
21 H-10e. Emergency Operation Center Communications

22  
23 Emergency Operation Center Communications and radio alarm system procedures.

## 24 25 **H-11 On-the-Job Training (OJT)**

26  
27 Personnel receive OJT based on the individual's job description. The training includes  
28 contingency plan implementation, familiarization with emergency procedures, and the  
29 methods and equipment applicable to the employee's work area. The training includes  
30 training on applicable SOPs, Letters of Instruction, and Internal Operating Procedures.  
31 At regular intervals employees must review and confirm that they have read and  
32 understand the procedures outlined in each SOP applicable to their duties. Additional  
33 OJT occurs when a new hazardous material is introduced to the work place or a new  
34 procedure is implemented. Credit for completion of chemical exercises or operations  
35 can be utilized as training credited for the annual HAZWOPER refresher when proper  
36 records are maintained. Chemical or CAIRA/CSEPP exercises conducted annually  
37 incorporate the following elements into the drills as per OSHA 1910.120: Structure of  
38 authority, training and communication, evacuation routes and procedures, use of PPE,  
39 decontamination processes, emergency medical treatment, and emergency alarm  
40 procedures.

## **Part I Closure Plans, Post Closure Plans, and Financial Requirements**

[401 KAR 34:070 Sections 2-6; 34:080 Section 2(3); 34:180 Section 9; 34:190 Section 8; 34:250 Section 2: and 40 CFR 264. 111-115, 264.178, and 264.601]

This closure plan specifies performance standards and describes procedures for the closure of the sampling site. The closure performance standards are designed to minimize the need for further maintenance by removing all hazardous waste and hazardous waste constituents from the sampling site. The closure plan is also designed to provide closure in a manner that will control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to surface water, groundwater, or the atmosphere.

There are no permitted container storage areas, tanks, waste piles, surface impoundments, incinerators, landfills, land treatment, or subpart X units, therefore closure requirements for the listed types of hazardous waste management units above are not applicable.

### **I-1. Closure Plan**

The end state of the sampling site is that all ECBC equipment/structures will be decontaminated and returned to ECBC, and the site will be returned to the condition it was prior to sampling operations. During sampling operations any identified hazardous waste spill will be remediated and containerized immediately. Records of all spills will be recorded in an operating record. Soil sampling will only be required if there is a documented release of hazardous waste outside of engineering controls.

#### **I-1a. Closure Performance Standards**

This Closure Plan specifies performance standards and describes procedures for the closure of the sampling site. This closure plan is designed to provide for closure in a manner that will:

- Minimize the need for further maintenance.
- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste and hazardous waste decomposition products to surface water, groundwater, or the atmosphere.

There will be no partial closure of the site. Final closure will accomplish the goals of the closure performance standards, noted above by: (1) completing all sampling operations, and (2) removing or decontaminating all equipment, bases, structures, or other materials containing or contaminated with hazardous waste or hazardous constituents associated with the sampling operation, (3) disposing of all hazardous

waste IAW Part D-12f, and (4) returning all equipment and structures to ECBC.

Post-closure maintenance or monitoring is not anticipated since no hazardous wastes or hazardous constituents are expected to remain above unrestricted use clean closure target levels following final closure.

After final closure, certification, and acceptance of closure by the KDEP, the area will not be classified as a hazardous waste management unit.

#### I-1b. Closure Activities

All sampling operations will take place within a glovebox, which is designed to prevent vapor or liquid leaks. Anything removed from the glovebox will be decontaminated and monitored prior to being removed, therefore the EE will likely not be contaminated unless there is an agent vapor or liquid leak outside the glovebox. In the case that there is a leak outside of the glovebox, the EE is designed to prevent any vapor or liquid release to the environment. All liquid agent inside the glovebox or EE will be decontaminated and removed during the sampling operation. Any spill of liquid agent outside of engineering controls will be remediated immediately.

If there is no evidence or record of a liquid spill outside of engineering controls in the operating record, closure will be limited to decontamination and removal of the ECBC equipment and structures.

Upon completion of operations, all hazardous waste and hazardous waste residues will be removed. The glovebox, EE, and PDS will be decontaminated using an appropriate decontamination solution. Once monitoring indicates that these structures are less than the WPL, the carbon will be removed from the carbon filter units and the filter housing will be decontaminated and monitored to less than the WPL. The flooring system will be placed into bags and monitored to the WPL. If a layer of the flooring system cannot be cleared to less than the WPL, that layer will be containerized and sent off as the appropriate waste stream. All ECBC equipment and structures (EE, PDS, and glove box, etc...) will then be removed from BGAD and returned to ECBC. Closure wastes will be collected in containers at a hazardous waste storage area (SAA and/or a less than 90 day storage) located at the site. GB agent contaminated wastes carry the Commonwealth of Kentucky hazardous waste number N001. Lab Wastes associated with treated GB wastes carry the Commonwealth of Kentucky hazardous waste number N701. Agent headspace monitoring or generator knowledge will be used for characterization. Containers will be moved to HWSU LO for disposal IAW BGAD Module III, Part D-1 of the Chemical Storage Permit Application.

In the unlikely event that there is a liquid agent spill outside of engineering controls to the environment, a soil sampling plan will be developed to verify clean closure.

1 A closure report will be prepared and a Certification of Closure submitted to KDEP.

2  
3 I-1c. Maximum Waste Inventory

4  
5 The maximum amount of agent at the sampling site at closure will be zero. Secondary  
6 wastes generated during sampling operations and closure will be collected in containers  
7 at a hazardous waste storage area (SAA and/or a less than 90 day storage) located at  
8 the site. Agent contaminated wastes carry the Commonwealth of Kentucky hazardous  
9 waste number - N001. Lab Wastes associated with treated GB wastes carry the  
10 Commonwealth of Kentucky hazardous waste number N701. Agent headspace  
11 monitoring or generator knowledge will be used for characterization. Containers will be  
12 transported to HWSU "LO" for disposal IAW BGAD Module III, Part D-1a of the  
13 Chemical Storage Permit Application.

14  
15 I-1d. Schedule for Closure

16  
17 Closure is scheduled to begin within 15 work days after PEO ACWA approves the  
18 sample analysis of the last item. Closure is expected to be completed within 15 work  
19 days.

20  
21 I-1e. Amendment to the Plan

22  
23 Personnel will notify KDEP and amend the closure plan if unexpected events occur  
24 during closure plan implementation which requires a modification to the approved  
25 closure plan.

26  
27 I-1f. Certification of Closure

28  
29 Within 60 days of completion of final closure procedures, a certification will be signed by  
30 a professional engineer and then submitted by the Permittee that the sampling site has  
31 been closed IAW the closure plan and all applicable regulations. Since there are no  
32 regulated disposal units, only certification of final closure of the facility will be submitted.

33  
34 **I-2. Post Closure Plan**

35  
36 The GB sampling facility is not a disposal site and any residual hazardous  
37 contamination will be removed prior to closure, therefore a post-closure plan is not  
38 required.

39  
40 **I-3. Financial Requirements**

41  
42 I-3a. Closure Cost Estimate

Not applicable; BGAD is a Federal Facility.

### I-3b. Financial Assurance Mechanism for Closure

Not applicable; BGAD is a Federal Facility.

### I-3c. Post Closure Cost Estimate

No post closure plan is required; therefore, no post closure estimate is required.

### I-3d. Financial Assurance Mechanisms for Post Closure Care

No post closure plan is required; therefore, no financial assurance mechanism for post closure care is required.

### I-3e. Liability Requirements

Not applicable; BGAD is a Federal Facility.

## **Part J: Other Federal Laws**

Permittee will follow other applicable Federal Laws as identified in the following Module:

Module II, Part J of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Conventional Munition Related Items, EPA ID # KY8-231-820-105 referenced in the Part B.



**Part K: Waste Minimization** [401 KAR 38:090 Section 2(23) and 38:030 Section 1 & 40 CFR §270.30]

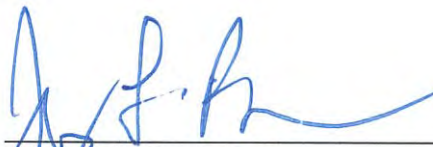
Permittee will follow the Waste Minimization as identified in the following Modules:

a. Module II, Part K of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Conventional Munition Related Items, EPA ID # KY8-231-820-105 referenced in the Part B.

b. Module III, Part K of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items, EPA ID # KY8-231-820-105 referenced in the Part B.

**Part L: Signatures** [401 KAR 38:070 Section 7 & 40 CFR §270.11]

"I certify under penalty of law that this document (Class 2 Hazardous Waste Storage & Treatment Permit Modification Request, addition of GB Sample Extraction Operation, for the Blue Grass Chemical Agent-Destruction Pilot Plant Blue Grass Army Depot, Richmond, Kentucky, Revision 0, dated 20 June 2017) and all attachments were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations."



Jeffrey L. Brubaker  
Site Project Manager  
Assembled Chemical Weapons Alternatives  
Blue Grass Chemical Agent-Destruction Pilot Plant  
Operator



Colonel Norbert A. Fochs  
Commander  
Blue Grass Army Depot  
Owner

Kentucky Natural Resources and Environmental Protection Cabinet  
Department for Environmental Protection  
Division of Waste Management  
14 Reilly Road - Frankfort, Kentucky 40601

DO NOT WRITE IN THIS SPACE

**Part A of the Kentucky Hazardous Waste  
Permit Application**

Facility's EPA ID No.

K	Y	8	2	1	3	8	2	0	1	0	5
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FOR OFFICIAL USE ONLY

Fee Submitted: \$

Receipt No.:

Date:

☐ FIRST SUBMITTAL (see INSTRUCTIONS) ☒ REVISION
PAGE 1 OF 22
☐ RENEWAL
1. Name of Facility: BLUE GRASS ARMY DEPOT2. Location of Facility: 431 BATTLEFIELD MEMORIAL HIGHWAYCity: RICHMOND State: KY Zip Code: 40475-50603. County: MADISON See INSTRUCTIONS: Latitude: 37°42'00"N Longitude: 84°12'30"W4. Name of Land Owner: See INSTRUCTIONS: U.S. DEPARTMENT OF THE ARMYLegal status of Land Owner: ☒ Federal (F) ☐ State (S) ☐ County (C) ☐ Indian (I)☐ Municipal (M) ☐ District (D) ☐ Private (P)☐ Other (O) specify: \_\_\_\_\_Land Owner's Mailing Address: 431 BATTLEFIELD MEMORIAL HIGHWAYCity: RICHMOND State: KY Zip Code: 40475-5001Facility Land Owner's Telephone Number: (859) 779-62465. Existing Facilities, provide the date operation began or construction commenced: 1941

(Month, Day, Year)

New Facilities, provide the date operation is expected to begin: H sampling and EDT operations: TBDGB sample extraction operation: May 2018

(Month, Day, Year)

6. Facility Mailing Address: SAME AS LAND OWNER'S MAILING ADDRESS

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

7. Facility Contact Person: JAMES L. HAWKINSTitle: BGAD, ENVIRONMENTAL CHIEF Phone Number: (859) 779-6268Facility Contact Person may be reached at ☐ Mailing Address ☒ Location Address ☐ Other Specify: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

K	Y	8	2	1	3	8	2	0	1	0	5
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8. Name of Facility Operator: *See INSTRUCTIONS:* See Sections I, II, III, and IV

Type of Owner: ☒ Federal (F) ☐ State (S) ☐ County (C) ☐ Indian (I)

☐ Municipal (M) ☐ District (D) ☐ Private (P)

☐ Other (O) specify: \_\_\_\_\_

Operator's Mailing Address: MAILING ADDRESSES REFLECTED ON RESPECTIVE SIGNATURE PAGES

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Facility Operator's Telephone Number: PHONE NUMBERS REFLECTED ON RESPECTIVE SIGNATURE PAGES

New Operators Assumed Responsibility for Facility on these Dates: BGAD (1941); BGCA (12/14/95); ACWA (07/11/2016);  
BPPG (6/13/2003)

9. Name of Facility Owner: *See INSTRUCTIONS:* U.S. DEPARTMENT OF THE ARMY

Legal status of Land Owner: ☒ Federal (F) ☐ State (S) ☐ County (C) ☐ Indian (I)

☐ Municipal (M) ☐ District (D) ☐ Private (P)

☐ Other (O) specify: \_\_\_\_\_

Owner's Mailing Address: SAME AS MAILING ADDRESS ABOVE

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Facility Owner's Telephone Number: (859) 779-6246

New Operator Assumed Responsibility for Facility on this Date: 1941  
(Month, Day, Year)

10. SIC Codes: (1) 9711 (2) \_\_\_\_\_ (3) \_\_\_\_\_ (4) \_\_\_\_\_

Briefly describe the type of business conducted at this site: NATIONAL SECURITY (U.S. ARMY)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **I. OPERATOR SIGNATURE: BGAD Commander Conventional Munition Related Items**

I. The Blue Grass Army Depot (BGAD) Commander is responsible for operation of the BGAD Facility, including the units listed on page 4.

NORBERT A. FOCHS  
COLONEL, U.S. ARMY  
COMMANDING  
431 BATTLEFIELD MEMORIAL HIGHWAY  
RICHMOND, KY 40475  
859-779-6246

Operator Certification: For operations listed on page 4 and waste streams 1-6, 22, 24, 25, and 26 listed on pages 16-17, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NORBERT A. FOCHS  
COL, LG  
Commanding  
BGAD  
Permit Operator

  
SIGNATURE

19 Jun '17  
DATE SIGNED

PAGE 4 OF 22 BGAD OPERATOR							Facility's EPA ID Number											
11. PROCESS DESCRIPTION. See Instructions							K	Y	8	2	1	3	8	2	0	1	0	5
Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process										
3	Storage Container Igloo B402	PI	S01	16000.00	G	1	OP	Storage of waste other than chemical munitions items.										
3	Storage Container Igloo B404	PI	S01	16000.00	G	1	OP	Storage of waste other than chemical munitions items.										
4	Storage Igloos (B608, B612, G108, G109)	IT	S01	0.00	N/A	4	CC	Igloos that previously contained hazardous waste. Clean Closed 4-20-1999										
3	Open Detonation / Buried Detonation	IS	X01	4.5	N	1	OP	Open detonation/buried detonation of waste military munitions and energetic waste.										
3	Open Burning (1) & (2)	IS	X01	7.5	N	2	OP	Open burning of waste military munitions and energetic waste.										
3	Molten Salt Destruction Unit, Building 575	IT	X99	0.00	N/A	1	CC	Building that previously contained hazardous waste. Clean Closed 3-30-2011										
3	Controlled Destruction Chamber	IS	X99	5.1	N	1	OP	Destruction of waste military munitions and energetic waste in an enclosed structure. It is not associated with chemical demilitarization.										

DEP-7058A( JULY 1997)

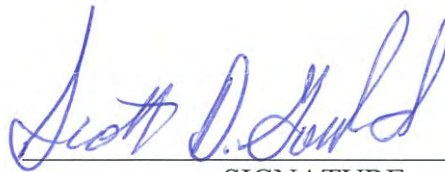
## II. OPERATOR SIGNATURE: BGCA Commander Chemical Storage Modification

II. The Blue Grass Chemical Activity (BGCA) Commander is responsible for operation of the Hazardous Waste Storage Units in the Chemical Limited Area as listed on pages 6-10.

SCOTT D. GOULD  
LTC, U.S. ARMY  
431 BATTLEFIELD MEMORIAL HIGHWAY  
RICHMOND, KY 40475  
859-779-6891

Operator Certification: For operations listed on pages 6-10 and waste streams 7-21 and 23 listed on pages 16-17, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SCOTT D. GOULD  
LTC, CM  
Commanding  
BGCA  
Permit Operator



SIGNATURE

15 June 2017

DATE SIGNED

## 11. PROCESS DESCRIPTION. See Instructions

K Y 8 2 1 3 8 2 0 1 0 5

Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process
4	Container Storage I	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage J	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage K	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage L	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage M	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 1 - 3%); treatment as defined by KRS 224.50-130.
4	Container Storage N	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 2 - 3%); treatment as defined by KRS 224.50-130.
4	Container Storage O	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 4%); treatment as defined by KRS 224.50-130.
4	Container Storage P	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage Q	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage R	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.



PAGE <u>7</u> OF <u>22</u> BGCA OPERATOR							Facility's EPA ID Number											
11. PROCESS DESCRIPTION. See Instructions							K	Y	8	2	1	3	8	2	0	1	0	5
Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process										
4	Container Storage S	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage T	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 4%); treatment as defined by KRS 224.50-130.										
4	Container Storage U	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage V	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage W	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage X	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage Y	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items and DOT Bottles, VX, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage Z	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage AB	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 2 - 3%); treatment as defined by KRS 224.50-130.										

DEP - 7058A (July 1997)

## BGCA OPERATOR

Facility's EPA ID Number

11. PROCESS DESCRIPTION. *See Instructions*

K Y 8 2 1 3 8 2 0 1 0 5

Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process
4	Container Storage CD	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, VX and/or H; (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage EF	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage GH	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage IJ	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 6%); treatment as defined by KRS 224.50-130.
4	Container Storage KL	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 2 - 3%); treatment as defined by KRS 224.50-130.
4	Container Storage MN	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage OP	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.
4	Container Storage QR	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 1 - 3%); treatment as defined by KRS 224.50-130.
4	Container Storage ST	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 1 - 3%); treatment as defined by KRS 224.50-130.

PAGE <u>9</u> OF <u>22</u>							BGCA OPERATOR										Facility's EPA ID Number									
11. PROCESS DESCRIPTION. <i>See Instructions</i>							K	Y	8	2	1	3	8	2	0	1	0	5								
Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process																		
4	Container Storage UV	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage WX	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 2 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage YZ	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 1 - 4%); treatment as defined by KRS 224.50-130.																		
4	Container Storage ZA	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 1 - 3%); treatment as defined by KRS 224.50-130.																		
4	Container Storage YB	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 2 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage XC	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 2 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage WD	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 2 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage VE	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage UF	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.																		
4	Container Storage TG	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.																		

PAGE 10 OF 22 BGCA OPERATOR							Facility's EPA ID Number											
11. PROCESS DESCRIPTION. See Instructions							K	Y	8	2	1	3	8	2	0	1	0	5
Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process										
4	Container Storage SH	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, VX, (estimate 1 - 3%); treatment as defined by KRS 224.50-130.										
4	Container Storage RI	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage QJ	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, GB, (estimate 3 - 5%); treatment as defined by KRS 224.50-130.										
4	Container Storage PK	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, H, (estimate 5 - 6%); treatment as defined by KRS 224.50-130.										
4	Container Storage OL	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, H, (estimate 5 - 6%); treatment as defined by KRS 224.50-130.										
4	Container Storage NM	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items and DOT Bottle, H, (estimate 5 - 8%); treatment as defined by KRS 224.50-130.										
4	Container Storage MN (H)	PI	S01, T04	3831.00	G	1	OP	Storage of Chemical Munitions Items, H, (estimate 1 - 2%); treatment as defined by KRS 224.50-130.										
4	Container Storage LO	PI	S01, T04	3831.00	G	1	OP	Storage of waste from the management of chemical munitions, chemical container, items in support of storage and mission. (Maintenance, Decontamination, PPE, etc.), (estimate 1 - 2%); treatment as defined by KRS 224.50-130.										
4	Container Storage KP	PI	S01, T04	3831.00	G	1	OP	Storage of waste from the management of chemical munitions, chemical container, and items in support of storage and mission. (Maintenance, Decontamination, PPE, etc.), (estimate 1 - 2%); treatment as defined by KRS 224.50-130.										

**III. OPERATOR SIGNATURE: PEO ACWA Site  
Project Manager  
Mustard Agent (H) Sampling Operation,  
GB Sample Extraction Operation  
Modifications**

---

III. Program Executive Office, Assembled Chemical Weapons Alternatives (PEO ACWA) Site Project Manager is responsible for operation in the Chemical Limited Area (CLA) as listed on page 12 & 13.

JEFFREY L. BRUBAKER  
PEO ACWA  
SITE PROJECT MANAGER  
830 EASTERN BYPASS SUITE 106  
RICHMOND, KY 40475  
859-779-7450

Operator Certification: For operations listed on pages 12 and 13, and waste streams M1-M4 listed on pages 17-18, and waste streams G1-G4 listed on page 20, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

JEFFREY L. BRUBAKER  
PEO ACWA  
Site Project Manager  
Permit Operator

  
SIGNATURE  
DATE SIGNED

## ACWA OPERATOR

Facility's EPA ID Number

11. PROCESS DESCRIPTION. *See Instructions*

K	Y	8	2	1	3	8	2	0	1	0	5
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Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process
4	H Sampling Facility	PI	T04	4.4	U	1	BC	Management of Mustard agent items in support of Treaty and de-mil requirements/mission. Operation to include but not limited to movement, drilling, sampling, plugging, and over-packing. Operation will be performed in a General Purpose Operations Shelter (GPOS), within a glove box, under engineering controls. Note: U=gallons per day based on agent fill. Estimated Process Design: 4 rounds/day × 11.7 lbs. per round ÷ 10.59 lbs/gallon ≈ 4.4 gallons/day DOT bottles are 14.75 lbs @ 10.59 lbs/gallon = 1.39 gallons/day [× 2 bottles ≈ 2.78 gallon/day]. Treatment as defined by KRS 224.50-130.
4	Movement H Sampling	PI	T04	318.4	U	1	CN	Movement of mustard fill agent items from EDT service Magazine or Chemical HWSU to the Mustard (H) Sampling Facility and movement from H Sampling Facility to EDT or EDT Service Magazine. To include movement at the H Sampling Facility. Note: U=gallons per day based on agent fill. Estimated Process Design (base on EONC capability): 72 H-rounds/trip × 11.7 lbs. per round ÷ 10.59 lbs/gallon ≈ 79.6 gallons/trip/EONC; for a maximum of 4 EONC/day X 79.6 ≈ 318.4 gallon/day. Treatment as defined by KRS 224.50-130.
4	GB Sampling Facility	RQ	T04	12	V	1	BC	Management of GB items in support of de-mil requirements/mission. Operation to include but not limited to movement, drilling, sampling, plugging, and over-packing. Operation will be performed in a GPOS, within a glove box, under engineering controls. Estimated Process rate: 2-8 inch GB filled projectile/Day [14.5 lb (GB) / 2.425 lb/L ≈ 12 liters/Day]. Treatment as defined by KRS 224.50-130.

## ACWA OPERATOR

Facility's EPA ID Number

11. PROCESS DESCRIPTION. *See Instructions*

Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process
4	Movement GB projectile and Sampling	RQ	T04	12	V	1	BC	<p>Movement of GB fill agent items from HWSU to the GB Sampling Facility and movement from Sampling Facility to HWSU. To include movement at the Sampling Facility.</p> <p>Estimated Process Rate/Day: 2-8 inch GB filled projectile or combination of the 2-projectiles and samples/Day.</p> <p>Treatment as defined by KRS 224.50-130.</p>

## **IV. OPERATOR SIGNATURE: BPBG Project Manager EDT Facility Modification**

---

IV. Bechtel Parsons Blue Grass (BPBG) Project Manager is responsible for operation in the Explosive Destruction Technologies (EDT) Portion of the Chemical Limited Area (CLA) also known as the "EDT Facility" as listed on pages 15.

RONALD HINK  
BPBG PROJECT MANAGER  
830 EASTERN BYPASS  
RICHMOND, KY 40475  
859-624-6240

Operator Certification: For operations listed on page 15 and waste streams E1-E9 listed on pages 18-19, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

RON HINK  
Bechtel Parsons Blue Grass  
Project Manager  
Permit Operator



SIGNATURE

6-13-17

DATE SIGNED



11. PROCESS DESCRIPTION. *See Instructions*

Commercial Indicator	Unique Unit or Group Name	Legal Status Code	Process Codes	Process Design Capacity Of All Units Listed Under This Name	Unit of Measure	Number Of Individual Units In This Process	Operating Status Code	Description Of Process
4	Static Detonation Chamber (SDC) System	PI	X99	70.2	J	1	UC	Subpart X Unit will treat Mustard Agent - H Munitions/DOT bottles (only two in stockpile) containing mustard agent and provide agent destruction. Maximum processing rate is 6 containers per hour. Scrap metal from chamber is recycled.
4	Service Magazine	PI	S01, T04	1,328	G	1	UC	Provide RCRA storage of hazardous waste and staging area/ buffer for treatment operations. Maximum storage capacity is 1,206 projectiles that contain approximately 1,326.6 gallons of mustard agent and two DOT bottles that contain a total of approximately 1.4 gallons of mustard agent. As part of destruction process, these containers are transported by forklift from the ESM to Explosive Destruction Technology (EDT) Enclosure Building (EEB) for destruction. Treatment as defined by KRS 224.50-130.
4	Movement of Chemical Agent Filled Munitions and DOT Bottles	PI	T04	576	U	1	CN	Transportation of mustard-filled items [in Enhanced Onsite Containers (EONCs)] from chemical agent Hazardous Waste Storage Units (HWSUs) to EDT Facility for storage and destruction, from EDT Facility to H-sampling facility (treaty verification) with return transport to EDT Facility for destruction, and movement between the ESM and the EEB. Each EONC can contain a maximum of 72 H-filled projectiles. The EONCs and mustard filled items are transported only during daylight hours. Treatment as defined by KRS 224.50-130.

K Y 8 2 1 3 8 2 0 1 0 5

**12. WASTE STREAM DESCRIPTION. See Instructions.**

WASTE STREAM NUMBER	ESTIMATE ANNUAL WASTE AMOUNT	UNIT OF MEASURE	EPA WASTE NUMBERS	PROCESS CODES ASSOCIATED WITH THIS WASTE
1	30.0	TONS	K045 Conventional Storage Section [Conventional Storage Section: (N)]	S01 Explosive contaminated granular activated charcoal.
2	2000.0	TONS	D003, K044 (N)	S01 Explosive sludge contaminated filters.
3	5.0	TONS	D004, D005, D006, D007, D008, and/or D009 (N)	S01 Baghouse dust from Controlled Destruction Chamber.
4	150.0	TONS	D006, D007, and/or D008 (N)	S01 Sandblast media from de-rusting operations.
5	2700.0	TONS	D003, D006, D007, and/or D008 (N)	S01 Explosive ammunition and related components.
6	5.0	TONS	K047 (N)	S01 Pink/red water from manufacturing and process of explosive.
7	0.5	TONS	D007, N001, N002, and/or N003 [Chemical Storage Section: (C)]	S01, and/or T04 Agent contaminated carbon filters with Whetlerite. Treatment as defined by KRS 224.50-130.
8	2.0	TONS	D007 (C)	S01 Expired carbon filters with Whetlerite.
9	1.0	TONS	D001, D002, D003, D004, D011, D018, D022, D035, D036, D037, D039, D040, D043, U002, U044, U103, U127, U154, U165, U131, U210, F001, F002, F003, F004, N001, N002, N003, N701, N702, and/or N703 (C)	S01, and/or T04 Laboratory wastes. Treatment as defined by KRS 224.50-130.
10	425.0	TONS	D001, D003, D004, D009, D011, D012, D030, N001, and/or N002 (C)	S01, and/or T04 Explosive components. Treatment as defined by KRS 224.50-130.
11	90.0	TONS	D001, D003, D004, D008, D009, N001, N002 and/or N003 (C)	S01, and/or T04 Explosive components. Treatment as defined by KRS 224.50-130.
12	0.5	TONS	N001, N002, and/or N003 (C)	S01, and/or T04 Agent contaminated debris. Treatment as defined by KRS 224.50-130.
13	2.5	TONS	D002, N001, N002 and/or N003 (C)	S01, and/or T04 Spent decontamination waste. Treatment as defined by KRS 224.50-130.

PAGE 17 OF 22				Facility's EPA ID Number											
				K	Y	8	2	1	3	8	2	0	1	0	5
12. WASTE STREAM DESCRIPTION. <i>See Instructions.</i>															
WASTE STREAM NUMBER	ESTIMATE ANNUAL WASTE AMOUNT	UNIT OF MEASURE	EPA WASTE NUMBERS	PROCESS CODES ASSOCIATED WITH THIS WASTE											
14	0.5	TONS	D002 (C)	S01 Expired decontamination waste.											
15	2.0	TONS	N001, N002, and/or N003 (C)	S01, and/or T04 Agent exposed PPE. Treatment as defined by KRS 224.50-130.											
16	1.0	TONS	D003, N001, N002, and/or N003 (C)	S01, and/or T04 Agent exposed reactive materials. Treatment as defined by KRS 224.50-130.											
17	425.0	TONS	D003, D005, D008, N001, and/or N002 (C)	S01, and/or T04 Chemical agent munitions (non-explosive components). Treatment as defined by KRS 224.50-130.											
18	90.0	TONS	D003, D005, D008, N003 (C)	S01, and/or T04 H-Mustard projectiles. Treatment as defined by KRS 224.50-130.											
19	2.5	TONS	D003, and/or N001 (C)	S01, and/or T04 GB leaker reactive waste. Treatment as defined by KRS 224.50-130.											
20	0.0	TONS	N001 (C)	S01, and/or T04 GB containers. Treatment as defined by KRS 224.50-130.											
21	0.5	TONS	N002, and/or N003 (C)	S01, and/or T04 VX and H-mustard DOT bottles. Treatment as defined by KRS 224.50-130.											
22	0.5	TONS	D001, D006, D007, D018, D035, D039, F001, F002, F003, F004, and/or F005 (N)	S01 Paint waste and related material.											
23	35.0	TONS	D002, D004-D011 and/or N001 (C)	S01, and/or T04 GB decontamination waste. Treatment as defined by KRS 224.50-130.											
24	216.0	TONS	D003, D001, D004, D005, D006, D007, D008, D010, D011, and/or D030	X01, open detonation/buried detonation. Waste Military Munitions and energetic waste. The weight in short tons for waste streams are expressed as Net Explosive Weight (NEW).											
25	340	TONS	D003, D001, D004, D005, D006, D007, D008, D010, D011, and/or D030	X99, controlled destruction chamber. Waste Military Munitions and energetic waste. Annual waste amount for Controlled Destruction Chamber estimated for 35,000 rocket motors (RM)/year at 20 lb NEW/RM. Estimate assumes the CDC is brought on-line from an operation perspective. The weight in short tons for waste streams are expressed as NEW.											
26	800.0	TONS	D003, D008, and/or D030	X01, open burning. Waste Military Munitions and energetic waste. The weight in short tons for waste streams are expressed as NEW.											
M1	0.25	TONS	N003 [H Sampling Operations Section: (M)]	S01, and/or T04 Agent contaminated debris/PPE. Treatment as defined by KRS 224.50-130.											

K Y 8 2 1 3 8 2 0 1 0 5

12. WASTE STREAM DESCRIPTION. *See Instructions.*

WASTE STREAM NUMBER	ESTIMATE ANNUAL WASTE AMOUNT	UNIT OF MEASURE	EPA WASTE NUMBERS	PROCESS CODES ASSOCIATED WITH THIS WASTE
M2	0.25	TONS	D001, D002, D003, D004, D011, D018, D022, D035, D036, D037, D039, D040, D043, U002, U044, U103, U127, U154, U1331, U210, F001, F002, F003, F004, and/or N703 (M)	S01, and/or T04 Laboratory wastes. Treatment as defined by KRS 224.50-130.
M3	0.25	TONS	D002 and/or N003 (M)	S01, and/or T04 Spent decontamination waste. Treatment as defined by KRS 224.50-130.
M4	0.25	TONS	D007 and/or N003 (M)	S01, and/or T04 Agent contaminated carbon filters Treatment as defined by KRS 224.50-130.
E1	729*	TONS	D004, D005, D006, D007, D008, D009, D010, D011, and/or N203 [EDT Section: (E)]	X99 SDC (Static Detonation Chamber) Chamber Residue -- includes metallic munitions fragments and ash. Scrap metal will be recycled after waste and residues (ash, particulates, dust, and fine metals) and debris (small metallic pieces) are removed via shaking and vibration. If hazardous waste, residue and debris removed from the scrap metal will be included with waste stream E6. <i>*Scrap metal to be recycled</i>
E2	1	TONS	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001-F005, and/or N003 (E)	S01 Agent-contaminated Derived-From KY Wastes -- PPE, trash, rags, munitions dunnage, operations & maintenance wastes that have contacted agent or represent a hazard from other known conditions.
E3	1	TONS	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001-F005, and/or N703 (E)	S01 Laboratory generated analytical wastes, samples, and solvents.
E3	1	TONS	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001-F005, and/or N703 (E)	S01 Laboratory generated analytical wastes, samples, and solvents.

PAGE <u>19</u> OF <u>22</u>				Facility's EPA ID Number											
				K	Y	8	2	1	3	8	2	0	1	0	5
<b>12. WASTE STREAM DESCRIPTION. See Instructions.</b>															
WASTE STREAM NUMBER	ESTIMATE ANNUAL WASTE AMOUNT	UNIT OF MEASURE	EPA WASTE NUMBERS	PROCESS CODES ASSOCIATED WITH THIS WASTE											
E4	1.5	TONS	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D028, D030, D039, D040, F001-F005, and/or N003 (E)	S01 Miscellaneous Wastes which includes, but may not be limited to, oils, hydraulic fluids, paints, solvents, and other wastes that exhibit characteristics of ignitability, corrosivity, reactivity, or toxicity due to the chemical composition of the materials. May be agent-derived if there was agent contact.											
E5	<1	TONS	D002, D004, D005, D006, D007, D008, D009, D010, D011, and/or N203 (E)	S01 Liquid from OTS (Off-Gas Treatment System) Scrubbers when removed from the system; considered agent-derived.											
E6	3	TONS	D004, D005, D006, D007, D008, D009, D010, D011, and/or N003 (E)	S01 Solids from the OTS Buffer Tank; considered agent-derived waste.											
E7	4	TONS	D004, D005, D006, D007, D008, D009, D010, D011, and/or N203 (E)	S01 Dry Salts and Particulates from the OTS Spray Dryer; considered agent derived.											
E8	10	TONS	D001, D004, D005, D006, D007, D008, D009, D010, D011, N003, and/or N203 (E)	S01 Particulates and vapors absorbed to the Carbon Beds, HEPA Filters, and Pre-filters from the IONEX 4000 and 16,000 filter banks; agent derived (N003). The filter located between the bleed water tank and the process water tank is agent-derived (N203).											
E9	280	TONS	D004, D005, D006, D007, D008, D009, D010, D011, and/or N203 (E)	S01 Dust and Metal Oxides from the OTS Bag House Filters; agent-derived.											

K Y 8 2 1 3 8 2 0 1 0 5

**12. WASTE STREAM DESCRIPTION. See Instructions.**

WASTE STREAM NUMBER	ESTIMATE ANNUAL WASTE AMOUNT	UNIT OF MEASURE	EPA WASTE NUMBERS	PROCESS CODES ASSOCIATED WITH THIS WASTE
G1	0.25	TONS	N001 [GB Sampling Extraction Operations Section: (G)]	S01, and/or T04 Agent contaminated debris/PPE. Treatment as defined by KRS 224.50-130.
G2	0.25	TONS	D001, D002, D003, D004, D011, D018, D022, D035, D036, D037, D039, D040, D043, U002, U044, U103, U127, U154, U1331, U210, F001, F002, F003, F004, and/or N701 (G)	S01, and/or T04 Laboratory wastes. Treatment as defined by KRS 224.50-130.
G3	0.25	TONS	D002 and/or N001 (G)	S01, and/or T04 Spent decontamination waste. Treatment as defined by KRS 224.50-130.
G4	0.25	TONS	D007 and/or N001 (G)	S01, and/or T04 Agent contaminated carbon filters. Treatment as defined by KRS 224.50-130.

K	Y	8	2	1	3	8	2	0	1	0	5
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**13. Existing Environmental Permits:**

Inter-State Regional Program [A]: \_\_\_\_\_  
 Single Well (FURS) [B]: \_\_\_\_\_  
 County Program [C]: \_\_\_\_\_  
 DOE Program [D]: \_\_\_\_\_  
 Other EPA Program [E]: \_\_\_\_\_ specify: \_\_\_\_\_  
 EPA 404 (dredge or fill program) [F]: \_\_\_\_\_  
 USGS Program [G]: \_\_\_\_\_  
 Area Wells (FURS) [H]: \_\_\_\_\_  
 NOTIS [J]: \_\_\_\_\_  
 Superfund (CERCLA) [K]: \_\_\_\_\_  
 FATES [L]: \_\_\_\_\_  
 Municipal (city, town, etc.) Program [M]: \_\_\_\_\_  
 NPDES/KPDES (discharges to surface water) [N]: KY0020737  
 PSD (Prevention of Significant Deterioration - Clean Air Act) [P]: Title V Air Permits [V-12-037, Rev. 2, & V-16-019]  
 CDS [Q]: \_\_\_\_\_  
 RCRA (hazardous wastes) [R]: KY8-213-820-105; EPA HSWA Permit for EDT  
 State Program [S]: \_\_\_\_\_  
 DOT Program [T]: \_\_\_\_\_  
 UIC (underground injection of fluids) [U]: \_\_\_\_\_  
 Intra-State Regional Program [W]: \_\_\_\_\_  
 Other Federal Program [X]: \_\_\_\_\_ specify: \_\_\_\_\_  
 CICIS (OTS Chemicals in Commerce Information System) [Y]: \_\_\_\_\_  
 Other Non Federal Programs [Z]: Water Withdrawal Permit #1013

**14 FACILITY STATUS:**☐ Waste is NOT received from off-site☐ Accepts waste from any off-site source(s) [A]

☒ Accepts waste from only a restricted group of off-site sources(s) [R]:  
 Specify: Military Sources / Government Sources

**15 PHOTOGRAPHS, DRAWING AND MAP - See INSTRUCTIONS**

All existing facilities must include photographs (aerial or ground level) that clearly delineate all existing structures; existing storage, treatment or disposal areas; and sites of future treatment, storage or disposal areas. All existing facilities must include a drawing showing the general layout of the facility and a topographic map. The photographs, drawing and map must be attached to this form.

**16 If the facility owner is also the facility operator, please skip this section and complete item 17 below.**

**Owner Certification** - I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NORBERT A. FOCHS, COL, LG, Commanding  
 NAME (PRINT OR TYPE)

Norbert A. Fochs  
 SIGNATURE

19 Jun '17  
 DATE SIGNED

**17 Operator Certification** - I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

See Sections I, II, III, and IV Above  
 NAME (PRINT OR TYPE)

Norbert A. Fochs  
 SIGNATURE

19 Jun '17  
 DATE SIGNED

**18 Land Owner Certification** - I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NORBERT A. FOCHS, COL, LG, Commanding  
 NAME (PRINT OR TYPE)

Norbert A. Fochs  
 SIGNATURE

19 Jun '17  
 DATE SIGNED

## **ADDENDUM NOTES / OPERATOR CERTIFICATION**

- I. Addition of GB Sample Extraction Operation